KERR McGee Chemical
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF ENVIRONMENTAL CLEANUP

MEMORANDUM

DATE: January 22, 2018

SUBJECT: Action Memorandum for a Time-Critical Removal Action for the 10-Acre Pond at the Kerr-McGee Chemical Corp. (KMCC) – Soda Springs Plant Superfund Site, Soda Springs, Caribou County, Idaho

FROM: Kathryn Cerise, Remedial Project Manager

THRU: Cami Grandinetti, Program Manager, Remedial Cleanup Program

TO: Sheryl Bilbrey, Director
Office of Environmental Cleanup

I. PURPOSE

Pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9604, this Action Memorandum documents the proposed time-critical removal action (TCRA) for the 10-Acre Pond at the Kerr-McGee Chemical Corp. (KMCC) – Soda Springs Plant Superfund Site located in Soda Springs, Caribou County, Idaho (the Site).

The Site is currently owned and managed by the Greenfield Environmental Multistate Trust LLC, Trustee of the Multistate Environmental Response Trust (the Multistate Trust). The estimated costs to perform this TCRA, if approved, are $5,582,100 which will be paid from the Multistate Trust Environmental Cost Account for the Site,[1, 2] in accordance with the Consent Decree and Environmental Settlement Agreement in the Tronox Bankruptcy and related

[1] Pursuant to Section 2.14 of the Multistate Environmental Response Trust Agreement, the Multistate Trust Environmental Cost Account is defined as "...segregated trust accounts (each a "Multistate Trust Environmental Cost Accounts") within the Multistate Trust for each of the Multistate Owned Funded Sites listed in Subparagraphs 10(f)(ii)-(xxvii) of the Settlement Agreement... The purpose of a Multistate Trust Environmental Cost Account for a Multistate Owned Funded Site shall be to provide funding for future Environmental Actions and certain future oversight costs of the Governments with respect to that Multistate Owned Funded Site."

[2] Pursuant to Section 1.1.11 of the Multistate Environmental Response Trust Agreement, ""Environmental Actions" means any and all environmental activities authorized or required under Environmental Law that occur after the Effective Date and that are related to any of the Multistate Owned Sites and certain Non-Owned Sites (for which the Multistate Trust will be performing environmental activities as provided herein), including but not limited to response or remedial actions, removal actions, corrective action, closure, or post-closure care, reclamation, investigations, studies, remediation, interim actions, final actions, emergency actions, water treatment, implementation of engineered structures and controls, monitoring, repair and replacement of engineered structures, monitoring equipment and controls, operation and maintenance, implementation, operation and maintenance of institutional controls, coordination and integration of reuse and remedial efforts and initiatives (including, without limitation, multi-stakeholder communications), and, if required, long-term stewardship and perpetual custodial care activities. "Environmental Actions" also include the above environmental activities relating to the migration of hazardous substances emanating from the Multistate Owned Sites and certain Non-Owned Sites. For the avoidance of doubt, "Environmental Actions" shall not include natural resource assessment or restoration."

documents (the Settlement Agreement), which established the Multistate Trust and sets forth the rights and responsibilities of the Multistate Trust as set forth in the Settlement Agreement. The Multistate Trust will implement the TCRA as approved by and under the oversight of the U.S. Environmental Protection Agency (EPA), as Lead Agency for the Site, in consultation with the Idaho Department of Environmental Quality (IDEQ), as the Support Agency for the Site.

II. SITE CONDITIONS AND BACKGROUND

Site Name:	Kerr-McGee Chemical Corp. – Soda Springs Plant
CERCLIS/EPA ID Number:	IDD041310707
NRC Case Number:	None
SSID:	10D3
Type:	Time-Critical Removal Action

From 1963 to 1999, KMCC operated a vanadium production facility at the Site. KMCC stored process water and waste from the production process in several large, unlined ponds. Significant uncontrolled releases of contaminated process water to groundwater from the unlined ponds occurred in both 1981 and in 1989, and led to EPA's decision to add the Site to the National Priorities List on October 4, 1989.

KMCC completed the Remedial Investigation (RI) and Feasibility Study (FS) in April 1995. Based on the RI/FS, on September 28, 1995, EPA issued a Record of Decision (ROD) for the Site, which included:

- Elimination of uncontrolled liquid discharges from the Site by replacing unlined ponds with lined ponds;
- Excavation and reuse/recycling of buried calcine tailings (by using calcine to manufacture fertilizer on Site;
- Placement of solids from the ponds in an on-Site landfill;
- In-place capping of windblown calcine and roaster reject material;
- Semi-annual groundwater monitoring to evaluate the effectiveness of source control measures in achieving risk-based groundwater performance standards, and;
- Inauguration of Institutional Controls (ICs) for off-Site areas to prevent exposure to groundwater for as long as the groundwater exceeds the risk-based concentrations.

Between 1996 and 1997, as part of the remedial action, KMCC constructed three (3) lined ponds, including the East and West 5-Acre Ponds, and the 10-Acre Pond.

In 1997, KMCC constructed the fertilizer plant to reuse calcine tailings from the vanadium plant; however, the operation was not viable. As a result, EPA entered a ROD amendment in 2000 that changed the remedy to in-place capping of the calcine solids combined with ICs to restrict land use and with continued groundwater monitoring.

In 2004, water and sediments in the East and West 5-Acre Ponds were placed in the 10-Acre Pond and then closed, leaving the 10-Acre Pond as the only pond on-Site.

In 2005, KMCC created Tronox Limited (Tronox) by transferring the Site and hundreds of other contaminated sites into this corporate "shell" without the funds required for cleanup of the sites. KMCC then sold its most valuable oil and gas assets to Anadarko Petroleum Corporation (Anadarko). In 2009, unable to pay for cleanup of the KMCC sites, Tronox filed for bankruptcy. In 2011, the U.S. Bankruptcy Court approved the Settlement Agreement with the U.S. government, 24 state governments, Tronox, and others that established several trusts, including the Multistate Trust with very limited funds to address only the most pressing environmental actions. The U.S. took over a lawsuit against Anadarko for fraudulent conveyance, which led to a court approved settlement on January 21, 2015. Under the Anadarko Litigation Settlement, the Site received funds of $90,628,603 between February 2015 and June 2016.

Beneficiaries of the Multistate Trust for the Site are the United States, represented by EPA, and the State of Idaho, represented by IDEQ.

A. Site Background

1. Removal Site Evaluation

KMCC constructed the 10-Acre Pond in 1997 to contain liquids and solids from vanadium processing and to contain vanadium production wastes from closure of former process ponds at the Site. The bottom of the 10-Acre pond is constructed with a multiple layer geosynthetic liner system, consisting of (from bottom to top): a 60-mil high density polyethylene (HDPE) liner; a geocomposite drainage net; and a 60-mil HDPE liner. This liner system is underlain by a thin soil cushion layer directly on bedrock. The 10-Acre Pond currently contains approximately 1.1 million gallons of water, predominantly from precipitation, and approximately 22,500 cubic yards of evaporite salts, sediment, and production waste solids from the closure of former process ponds. The volume of liquid in the pond fluctuates with precipitation and evaporation. Inspections of the liner and pond depth measurements are collected monthly. Based on visual inspections of the top of the liner performed by the Multistate Trust's Third-Party Contractor on October 6 and November 17, 2017[3], there are cracks and tears in the liner, which suggest a high potential for liner failure.

It is important to note that the existing liner may be reaching its functional life expectancy. The functional life of the geosynthetic materials available in 1997 is generally considered to be approximately 20-30 years when used as a pond liner. This is typically due to the maintenance activities associated with a pond which have the potential to damage the liner, as opposed to a solid waste landfill application where the liner is not disturbed once the first lifts of waste are placed.

Historic and current water and sediment samples collected from the 10-Acre Pond have some of the highest concentrations of molybdenum and vanadium, both Site-related chemicals of

[3] 10-Acre Pond inspections performed by Thomas Brown, P.E., Pioneer Technical Services, Inc (Pioneer) on October 6, 2017 and Joel Gerhart, P.E., Pioneer and Mark Rhodes, P.E., Hydrometrics Inc.

concern (COCs[4]), found at the Site. The most recent[5] concentrations of molybdenum in the 10-Acre Pond surface water range from 175,000 to 253,000 micrograms/liter (µg/L) (see Table 1) and are higher than the highest concentration of molybdenum detected in the historical liquid discharges sent to the former solvent extraction (S-X) Pond (detected at a concentration of 155,000 µg /L in 1992), and higher than the highest concentration of molybdenum detected in groundwater monitoring well KM-8, which is located southeast of the former S-X Pond (detected at a concentration of 165,000[6] µg /L in 1994).

2. Physical Location

The Site is located approximately 1.5 miles north of the City of Soda Springs in Caribou County, Idaho and consists of about 547 acres of land on the east side of State Route 34. It is bordered by agricultural land to the north, east, and south and the Monsanto Corporation (Monsanto) phosphate processing plant (Monsanto facility) across State Route 34 to the west. Except for the Monsanto plant, the area within a mile of the Site is generally rural.

The municipal water supply for the City of Soda Springs comes from six springs located near the Site, including: Formation Spring, located approximately 1.5 miles northeast of the 10-Acre Pond; and five springs in the Kelly Park area, located approximately one mile south of the 10-Acre Pond.

Site elevation ranges from 5,960 to 6,020 feet above sea level and has average high temperatures of 55 degrees Fahrenheit (F) and average low temperatures of 29 degrees F. Average annual rainfall is 15.9 inches, with most precipitation occurring between March and June. The prevailing wind direction is predominantly from the southeast based on windrose data from the Allen H. Tigert Airport.

A review of sensitive plant and animal species information for Caribou County indicated that the U.S. Fish and Wildlife Service considers the Northern Goshawk (*Accipiter Gentilis*), Peregrine Falcon (*Falco Pereginus Anatum*), Common Loon (*Gavia Immer*), Harlequin Duck (*Histrionicus Histrionicus*), Flammulated Owl (*Otus Flammeolus*), Western Toad (*Bufo Boreas*), North American Wolverine (*Bulo Gulo Luscus*), and Hoary Willow (*Salix Candida*) as sensitive species.

3. Site Characteristics

Chemical manufacturing began at the Site in 1963 and continued until 2009. The facility was owned and operated by KMCC to produce vanadium, although secondary by-products such as

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[4] The ROD identified six chemicals of concern (COCs)—arsenic, manganese, molybdenum, tri-butyl phosphate (TBP), total petroleum hydrocarbons (TPH) and vanadium.

[5] Historical results from the 10-Acre Pond have been as high as 1,200,000 µg/L as reported during the September 22, 2010 10-Acre Pond sampling.

[6] This represents the highest concentration of molybdenum detected in groundwater and was collected on 10/26/1994. This result was reported in Appendix B, Table B-3-7 of the Kerr-McGee Chemical Corporation Final Remedial Investigation Report, Soda Springs, Idaho Facility prepared by Dames & Moore in April 25, 1995 (1995 RI report).

fertilizer and cathode materials for rechargeable batteries were also produced between 1997 and 2009. Neither the federal or state governments have owned or operated this property.

The 547-acre Site consists of six parcels of land in Caribou County, Idaho, 18 buildings currently remain on-Site, many of which are not structurally sound or salvageable and are scheduled for demolition in 2018. Besides the buildings and waste repositories, the 10-Acre Pond is the only remaining feature at the Site.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant.

The COCs present at the Site include arsenic, manganese, molybdenum, tri-butyl phosphate (TBP), and vanadium, which are all hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C § 9601(14). The COCs have impacted on-Site soils and both on-Site and off-Site groundwater. The primary COCs of interest with respect to groundwater are molybdenum and vanadium.

5. National Priorities List Status

The Site was placed on the National Priorities List on October 4, 1989 and the ROD was issued on September 28, 1995. Remedial activities are in progress.

6. Maps, Pictures and Other Graphic Representations

The following maps and figures have been attached to this memorandum:

- Figure 1 – Location Map
- Figure 2 – 10-Acre Pond Site Map
- Figure 3 – Historical 10-Acre Pond Imagery
- Figure 4 – Site Windrose Data
- Figure 5 – Location and Proposed Layout of On-Site Repository
- Figure 6 – Shallow Groundwater Elevation Map
- Figure 7 – Shallow Groundwater Molybdenum Plume Map
- Figure 8 – Shallow Groundwater Vanadium Plume Map
- Figure 9 – Surface Water Features
- Figure 10 – Molybdenum Concentrations in Surface Water Downgradient of 10-Acre Pond
- Figure 11 – Vanadium Concentrations in Surface Water Downgradient of 10-Acre Pond

B. Other Actions to Date

1. Previous Actions

Preliminary Assessment and Site Investigation

In May of 1985, the State of Idaho Hazardous Materials Bureau (IHMB) completed a preliminary Site assessment followed by a Site Investigation (SI). The IHMB Site Assessment concluded that: (1) on-Site waste ponds contained variable concentrations of arsenic, cadmium, chromium, lead and vanadium; (2) three organic compounds were present in the Scrubber Pond; (3) groundwater sample results indicated a release from the Site to shallow ground water; (4) there was evidence of groundwater contamination near the Site, structural features that may affect potential contaminant migration at the Site, and possible contaminant migration at the 60-meter (200-foot) depth (based on two distinct anomalies observed during an electromagnetic [EM]) survey; and (5) no domestic or municipal water supply sources appeared to be impacted by Site contaminants. The IHMB SI results concluded that: (1) groundwater was the most likely pathway for contaminant migration; (2) surface water was not considered to be a likely exposure pathway; (3) there was a potential for the exposure to waste pond solids by trespassers or on-Site workers; and (4) potential receptors at the highest risk were considered to be users of nearby irrigation and industrial wells. EPA listed the Site on the National Priorities List on October 4, 1989. EPA issued an Administrative Order on Consent for the RI/FS on September 20, 1990, with an effective date of October 4, 1990.

1995 Remedial Investigation (RI)

Between 1991 and 1994, as part of the RI, under EPA oversight, KMCC collected and analyzed air, soil, wastewater, pond solids and sediment, vadose zone soils, and groundwater samples at the Site. RI sampling locations were outside of the main vanadium plant operation area, which was operational at that time.

The 1995 RI demonstrated that the primary media of concern was groundwater and the primary exposure pathway was ingestion of groundwater. As a result, the remedial action objectives (RAOs) for the Site were designed to prevent ingestion of groundwater with concentrations of vanadium, molybdenum, manganese, TBP, and TPH in excess of risk-based performance standard (RBPS) concentrations and arsenic in excess of the maximum contaminant level (MCL) concentrations. The RBPSs and MCL for arsenic are the established site-specific project-screening levels (PSLs) for COCs at the Site.

A secondary concern identified during the RI was material in the roaster reject area. The RAO associated with this material was to prevent ingestion or direct contact with material with vanadium concentrations above 14,000 milligrams per kilogram (mg/kg).

The major RI conclusions included:

- Air was not a major pathway for exposure;
- Soil contamination was confined to areas near the calcine tailings;

- Gamma radiation readings at the Site were consistent with background levels, except at the iron phosphate ore storage areas (twice [2x] background) and in paved areas, which have crushed slag for road base material. The elevated readings were in the general vicinity of the main vanadium plant area, along the perimeter road west of the former S-X Pond, and at one location along the perimeter road northeast of the East Calcine Repository;
- Metals leached from solid sources contribute to metals concentrations in groundwater, although faults may alter horizontal and vertical hydraulic conductivity;
- Pond leakage from the Scrubber Pond, S-X Pond, and calcine tailings represents the most significant source of COCs in groundwater;
- Advection and preferential flow are the primary chemical transport mechanisms for groundwater;
- Municipal drinking water had not been contaminated by the Site operations, however, off-Site groundwater west and southwest of the Site was impacted by Site COCs and groundwater to surface water impacts were observed in Finch Spring and Big Spring;
- On-Site exposure risks were not significantly higher than background, although the risk could be higher if contaminated solid sources are ingested or if off-Site contaminated groundwater is consumed; and
- Ecological risks were estimated to be minimal, but follow-up investigations were ongoing.

1995 ROD

The 1995 ROD presented the following remedy for groundwater:

- Elimination of uncontrolled liquid discharges from the Site by replacing unlined ponds with lined ponds;
- Excavation and reuse/recycling of buried calcine tailings (by using calcine to manufacture fertilizer on Site for an 8-year period;
- Excavation and disposal of S-X Pond and Scrubber Pond solids into lined ponds on-Site; Placement of solids from the ponds in an on-Site landfill;
- In-place capping of wind-blown calcine and roaster reject material;
- Semi-annual groundwater monitoring to evaluate the effectiveness of source control measures in achieving groundwater PSLs for the COCs; and
- Inauguration of ICs for off-Site areas to prevent exposure to groundwater for as long as the groundwater exceeds the PSLs.

In addition to the selected remedy for groundwater, the ROD included remedial actions to address potential human exposure to roaster reject materials stored above ground and migration of windblown calcine tailings to surrounding land. The selected remedy for the roaster reject materials was resource recovery/reuse, and the selected remedy for windblown calcine tailings was excavation and disposal.

Post-ROD Remedial Actions

Remedial actions taken as part of the implementation of the 1995 ROD include:

- Routine remedy feature operation and maintenance (beginning in 1996);
- Reclamation of the S-X Pond after the solids were moved to an on-Site, double-lined and capped landfill (Landfill)[7] and the liquids were moved to two lined ponds (East and West 5-Acre Ponds) (1996);
- Construction of the additional double-lined, 10-Acre Pond (1997); and
- Installation of a baghouse system to eliminate the wet-scrubber and process water discharge, closure of the Scrubber Pond (after moving the solids to the Landfill, containing S-X Pond solids and moving liquids to two lined ponds (East and West 5-Acre Ponds) (1997).

2000 ROD Amendment and Post-ROD Amendment Remedial Actions

In 2000, the EPA issued a ROD Amendment to address the reuse/recycling of calcine tailings and roaster rejects component of the selected remedy. EPA concluded that the fertilizer plant, constructed at the Site as part of the reuse/recycling remedy, could not meet the ROD-specified cleanup timeframe and required KMCC to implement an alternative remedy for the calcine tailings and roaster rejects.

Based on the previous evaluations in the 1995 ROD, the amendment documented a change in the remedy for the calcine tailings from reuse/recycling to in-place capping (also referred as the East Calcine Repository or East Calcine Area) in combination with ICs restricting land use and continued groundwater monitoring.

After the 2000 ROD Amendment, additional remedial actions and significant milestones included:

- Monitoring wells KM-1 and KM-10 ceased to be included in the groundwater and surface water monitoring program (2000);
- A cap was installed at the East Calcine Repository over the windblown calcine, roaster reject, reject fertilizer, and active calcine tailings (2001);
- An infiltration gallery was constructed on the north side of the East Calcine Repository (2002);
- The vanadium plant at the Site was demolished (2002);
- The fertilizer plant at the Site was demolished (2003);
- Storm water runoff ponds 4 and 5 were reclaimed (2003);
- An infiltration gallery was constructed on the south side of the East Calcine Area (2004);
- The East and West 5-Acre Ponds were reclaimed (2004);
- KMCC purchased the adjacent property (2004);
- KMCC created Tronox (2005);
- Unable to pay for cleanup of the KMCC sites, Tronox filed for bankruptcy (2009);

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[7] This landfill has also been referred to as the "RCRA Landfill" in the various Site documents. There is no RCRA permit for the Site; however, the term "RCRA Landfill" has historically been used because this waste repository was reportedly designed and constructed to meet RCRA Subtitle D design standards.

- The bankruptcy court approved a settlement agreement with the U.S. government, 24 state governments, Tronox, and others that established several trusts, including the Multistate Trust (2011);
- EPA conducted the Third-Five Year Review (2012);
- Funds from the Anadarko Litigation Settlement (approved January 21, 2015) were distributed in 2015 and 2016;
- The Multistate Trust installed thirteen (13) additional on-Site monitoring wells (KM-21 through KM-33) as part of the Phase I Supplemental Remedial Investigation (SRI) to further characterize the extent of COCs in groundwater (2015);
- The Multistate Trust consolidated and disposed off-Site (or recycled) more than 2 million pounds of residual (hazardous and nonhazardous) waste (2015 to 2016);
- Six additional on-Site monitoring wells (KM-34 through KM-37, KM-44, and KM-45) and nine off-Site monitoring wells (KM-38 through KM-43, KM-46, KM-47, and KM-48) were installed during the Phase II SRI to further characterize the extent of COCs in groundwater (2016 to 2017); and
- Site related semi-annual or annual groundwater and surface water monitoring was conducted (1995 to 2017).

EPA Five-Year Reviews

EPA has conducted three five-rear reviews at the Site – First Five-Year Review (2002), Second Five-Year Review (2007) and Third Five-Year Review (2012). The results of the Third Five-Year Review indicate that the remedy for the Site was constructed in accordance with the requirements of the ROD; however, the selected remedy does not currently protect human health and the environment. The Third Five-Year Review recommended the following eight actions be taken at the Site:

1. Investigate and characterize possible additional sources of Site-related COCs within the former KMCC facility;

2. Establish proprietary controls for Multistate Trust-owned property;

3. Develop an Institutional Control Plan and implement ICs governing groundwater use at locations downgradient of the industrial facility where COCs are known to exceed MCLs or risk-based PSLs;

4. Investigate current (and potential future) usage of domestic wells downgradient of the industrial facility and their relationship to the groundwater plume or plumes;

5. Augment and expand the existing groundwater monitoring network and perform additional characterization work to better define the COC plumes;

6. Repair identified fence sections located at the landfill and calcine capped areas;

7. Develop and implement a facility-wide O&M Plan; and

8. Evaluate potential risks to ecological receptors in areas downgradient from the industrial facility.

Since 2014 and with the receipt of the funds from the Anadarko Litigation Settlement, the Multistate Trust under oversight of EPA, as Lead Agency for the Site, in consultation with the IDEQ, as the Non-Lead Agency for the Site has undertaken several environmental actions, including the SRI, to address these eight recommendations.

Domestic Well Survey

EPA recommended in the Third Five-Rear Review reports for both Monsanto and the Site that completion of a domestic well survey and domestic well sampling be performed. The well survey and water quality sampling were completed as collaboration between Monsanto and the Multistate Trust. A work plan[8] was prepared by the Multistate Trust, with input from Monsanto and EPA, and included the following:

- Reviewing existing information to identify domestic wells in the survey area.
- Contacting property owners in the survey area
- Collecting water quality samples from wells where permission to sample was granted by the owner
- Submitting samples for laboratory analysis and preparing a report on the sampling event.

Sampling of identified wells was conducted in November 2014. The results of the domestic well survey and sampling event demonstrated that concentrations of COCs were less than the Monsanto remediation goals and the Site PSLs in the four wells and spring that were sampled.

10-Acre Pond Beach Regrading and Stabilization

In October 2014, the Multistate Trust initiated regrading and stabilization efforts to minimize fugitive dust emissions from accumulated solids within the 10-Acre Pond. Solids were observed leaving the pond during high winds resulting in impacts to the vegetation surrounding the pond. The piles of solids were lowered approximately 4.5 feet and recontoured to six-percent slope grades. The solids were then treated with Soil Sement® Dust and Erosion Control Agent to bind the fines and prevent further transport due to wind scour.

2. Current Actions

Long-Term Semi-Annual and Annual Groundwater and Surface Water Monitoring

As a part of the 1995 ROD, groundwater and surface water monitoring continues to be performed on a long-term basis. KMCC and Tronox monitored water levels and water quality in groundwater monitoring wells and selected surface springs on a semi-annual basis from 1991 to 2010. The Multistate Trust continued to monitor groundwater on a semi-annual basis

[8] Greenfield Environmental Multistate Trust, LLC, Trustee of the Multistate Environmental Response Trust, in Consultation with Monsanto Chemical Company. 2014. Off-site Well Identification and Use Survey Work Plan. June.

through 2015. In 2016, the sampling frequency for the Site was reduced from semi-annual to annual in accordance with an EPA memorandum documenting a nonsignificant change to the ROD.

Supplemental Remedial Investigation

The Multistate Trust began performing a SRI in Fall 2015 after receipt of the Anadarko Litigation Settlement funds. The SRI is currently ongoing. The objectives of the SRI are to:

- Investigate and characterize possible additional sources of Site-related COCs at the Site;
- Augment and expand the groundwater monitoring network;
- Perform additional investigation activities to better define the molybdenum and vanadium contaminant plumes, groundwater gradients, and physical and human-caused influences on area-wide groundwater;
- Investigate the City of Soda Springs drinking water sources to determine whether Site-related COCs are impacting or have the potential to impact these drinking water sources;
- Collect data to update the Baseline Human Health and Ecological Risk Assessments; and
- Collect data to support a Focused Feasibility Study (FFS).

C. Roles of State and Local Authorities

1. State and Local Actions to Date

Pursuant to the Settlement Agreement under which the Multistate Trust was established, the Multistate Trust is responsible for, among other things, implementing all Environmental Actions including the removal of the 10-Acre Pond at the Site. The EPA and IDEQ, as beneficiaries of the Multistate Trust, will continue to monitor and oversee implementation of Environmental Actions at the Site; therefore, there are no "State and Local Actions to Date" other than the Preliminary Assessment and Site Investigation performed by IHMB before the Site was listed on the National Priorities List in 1989 (See Section II.B).

2. Potential for Continued State/Local Response

The EPA—in coordination with IDEQ, as the Non-Lead Agency—and the Multistate Trust will ensure meaningful involvement of local stakeholders throughout the implementation of the removal of the 10-Acre Pond.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Site COCs include molybdenum, vanadium, manganese, TPH, TBP, and arsenic. These COCs have been detected in surface water and sediments in the 10-Acre Pond. Although the 10-Acre Pond is lined, the integrity of the liner is highly questionable and it is not known if the 10-Acre Pond is leaking, thus there is a potential for contaminants to migrate into the underlying soils

and shallow groundwater. COC concentrations in surface water samples collected from the 10-Acre Pond (herein referred to as "pond water") historically and in July 2017 are well above the EPA Regional Screening Levels (RSLs) for tapwater and the risk-based PSLs established in the ROD.

A summary of the threats to public health or welfare or the environment, and the basis for action are presented is below.

Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants:

The potential release of water and sediment from the 10-Acre Pond represents a significant potential exposure risk to human health and the environment. Concentrations of COCs in the pond water in the 10-Acre Pond exceed the RSLs and site-specific PSLs by several orders of magnitude (up to 253,000 µg/L molybdenum vs a PSL of 180 µg/L; 32,000 µg/L vanadium vs a PSL of 260 µg/L; and 11,700 µg/L manganese vs a PSL of 180 µg/L). COC concentrations at monitoring wells KM-3 and KM-8 have historically decreased after the elimination of the liquid discharges in 1995; however, beginning in about 2000, COC concentrations began to stabilize. One hypothesis, is that the 10-Acre Pond is a contributing source to groundwater. Additionally, in July 2016, a groundwater sample from KM-3 (located immediately south of the 10-Acre Pond) had elevated vanadium and molybdenum results. These data have been considered anomalous; however, it is possible that this sample result may be due to intermittent leakage from the 10-Acre Pond.

Potential release mechanisms of COCs from the 10-Acre Pond include:

- Leaching and downward percolation/infiltration of COCs into underlying soils and shallow groundwater;
- Discharge of COCs from shallow groundwater to surface water (downgradient springs); and
- Windblown dispersion of COCs off-Site.

Land and water use in the vicinity includes agricultural land, wildlife, aquatic resources, and springs used as public drinking water supplies. Screening levels for these uses have been evaluated based on the present land and water use. Also, appropriate screening levels have been evaluated for downgradient water uses and wildlife/ecological resources.

Based on the current and future land and water uses, habitat, and ecological resources, the following potential exposure pathways have been identified:

- Potential exposure of wildlife to COCs in the pond water;
- Potential exposure of aquatic resources to COCs migrating to springs/ponds/creeks;
- Incidental ingestion and dermal contact with COCs in off-Site springs and ponds by recreational user;
- Ingestion of fish that have bioaccumulated COCs in off-Site and downgradient ponds by sportsmen;
- Ingestion of waterfowl that have bioaccumulated COCs in the pond water by sportsmen;
- Ingestion of COCs potentially migrating to drinking water sources;

- Incidental ingestion and dermal contact with COCs by trespassers illegally entering the Site; and
- Incidental ingestion and dermal contact with COCs potentially migrating to adjacent property from windblown dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems:

The potential for contamination of drinking water supplies and sensitive ecosystems is high if there is a significant release from the 10-Acre Pond. The integrity of the 10-Acre Pond liner is uncertain, however observations of limited visible areas indicate the liner appears to be in very poor condition. Because the liner cannot be fully inspected and evaluated without dewatering and removing accumulated sediments, the status of leakage remains unknown. If there are leaks in the liner, there is a potential imminent and ongoing threat to shallow groundwater from the high COC concentrations documented in the pond water. The groundwater below the 10-Acre Pond is approximately 30 feet below the bottom of the liner. The shallow groundwater flows southwest near the Site, and then flows south in the vicinity of the City of Soda Springs. Groundwater discharges to surface water as springs in the City of Soda Springs. Additionally, water leakage from the 10-Acre Pond could migrate laterally and mobilize COCs currently residing beneath the adjacent East Calcine Repository.

Potential COC migration to exposure points:

1. The Ledger Springs Complex supplies drinking water to the approximately 3,000 residents of Soda Springs. This system of springs is located approximately one mile from the 10-Acre Pond. These springs emanate from the shallow aquifer in basalt, which is the same aquifer that underlies the 10-Acre Pond. Although the springs are not directly downgradient from the 10-Acre Pond, the molybdenum and vanadium plumes are migrating in that general direction. Leakage of water with high concentrations of COCs in the pond water could infiltrate groundwater and migrate southward toward the City's drinking water supply. The trajectory of the groundwater contaminant plume may be influenced (deflected to the west) by groundwater pumping on the Monsanto plant where approximately 2,500 gallons per minute (gpm) of groundwater is withdrawn to support operations. Future changes (reductions) in groundwater pumping at the Monsanto facility could increase the potential risk of Site-related groundwater contamination influencing the City of Soda Springs drinking water supply.

2. A public pond in Kelly Park, called the "Kelly Park Pond," is stocked as a fishing pond and fed by springs near the Ledger Springs Complex. The Kelly Park Pond is located downgradient of the Site and represents a potential exposure pathway for swimmers and ingestion of fish from the pond. In 2017, molybdenum concentrations were 37 µg/L in 2017 in the Kelly Park Pond and 83 µg/L in Finch Spring, located approximately 1,800 feet north of Kelly Park Pond. These concentrations suggest the groundwater that forms these springs is potentially hydraulically connected to the Site. A release of water from the 10-Acre Pond could infiltrate into groundwater and thus migrate to Finch Spring and Kelly Park Pond.

3. Kelly Park is a popular public park with springs, streams, and aquatic biota. Finch Spring, has a known groundwater migration pathway from the Site. Increases in COCs in

groundwater will likely manifest in these springs and streams. Figures 9, 10 and 11 show the locations of these water features relative to the Site and associated molybdenum and vanadium concentrations.

Table 1 summarizes the COC concentrations in pond water in the 10-Acre Pond and associated RSLs, PSLs, chronic and acute water quality criteria, and avian criteria.

Table 2 summarizes the COC concentrations in the solids in the 10-Acre Pond and associated risk-based soil screening levels (SSLs).

TABLE 1 – 10-Acre Pond – August 2017 Pond Water Results

Site COC	COC Concentrations in Pond Water (µg/L)	Tapwater RSL (µg/L)[1]	Project Screening Level (µg/L)[2]	EPA WQC (µg/L)[3]	Avian (µg/L)[4]
Molybdenum	175,000 – 253,000	100	180	---	15,040
Vanadium	24,800 – 32,300	86	260	---	48,989
Manganese	7,870 – 11,700	430	180	---	4,284,000
Arsenic	75 – 311	0.52	50	150 (0.14)	10,600

Notes:

1. Regional Screening Levels (RSLs) for tapwater (EPA, 2017a)
2. Project Screening Levels (PSLs) from ROD Risk-Based Groundwater Performance Standards (EPA, 1995)
3. EPA freshwater chronic and human health fish ingestion (in parenthesis) (Water Quality Criteria [WQC])
4. Risk-based screening level for rough-winged swallow drinking water (i.e. exposure through the food chain is not considered) (Sample et al., 1996)

EPA. 1995. Record of Decision, Kerr-McGee, Soda Springs, September 28.
EPA. 2017a. "Regional Screening Levels (RSLs) – Generic Tables (June 2017)."
https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-june-2017
EPA. 2017b. "National Recommended Water Quality Criteria– Human Health Criteria Table (Accessed October 25, 2017)."
https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table

TABLE 2 – 10-Acre Pond – August 2017 Sediment Results

Site COC	COC Concentration (mg/kg)	Industrial Soil SSL (mg/kg)[1]	Protection of Groundwater Risk-Based SSL (mg/kg)[2]
Molybdenum	29,900	5,800	2
Vanadium	30,700	5,800	86
Manganese	725	26,000	280
Arsenic	7	3.0	0.0015

Notes:

1. EPA Regional Screening Levels (RSLs) for Industrial Soil; Last revised June 2017 (EPA, 2017a)
2. EPA RSL for Protection of Groundwater; Last revised June 2017 (EPA, 2017a)

EPA. 2017a. "Regional Screening Levels (RSLs) – Generic Tables (June 2017)."
https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-june-2017

If COCs from the 10-Acre Pond migrate to potential exposure points, measured COC concentrations could be well above the risk-based benchmarks. The elevated molybdenum concentrations in the surface water are high enough to pose a current risk to avian receptors. The arsenic concentration is above the water quality criteria for chronic and human health fish ingestion.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate:

Existing data of the solids in the pond indicate high concentrations of COCs at or near the surface that have the potential for windblown dispersion. Additionally, the uncertain integrity and lifespan of the liner in the 10-Acre Pond presents the potential for leakage of highly contaminated pond water to have contaminated soils underlying the pond. The underlying soils consist of silt overlying the basalt that contains the shallow aquifer. No confirmation sampling of the underlying soils has been conducted because the pond water, sediment, and liner in the 10-Acre Pond prevent sampling.

Weather conditions that may cause hazardous substances or pollutants to migrate or be released:

It is possible that heavy precipitation events such as summer cloudbursts and high spring snowmelt could potentially affect the stability and the performance of the 10-Acre Pond. Above-average precipitation and rapid snowmelt could result in unusually high water levels in the pond, and an overflow could release surface water with very high COC concentrations and flood agricultural land located to the south of the pond. Additionally, continued freeze-thaw conditions could continue to degrade the liner, resulting in pond water leakage and damage to the berms, which may cause catastrophic failure of the pond.

Other uncontrolled natural events in the vicinity of the 10-Acre Pond include earthquakes. Earthquake swarms have been recorded recently in Soda Springs. On September 2, 2017, a M5.3 earthquake was recorded east of Soda Springs, causing moderate shaking over a broad area of southeastern Idaho, northern Utah, and western Wyoming. According to the U. S. Geological Survey, the M5.3 Soda Springs Sequence is particularly active, producing more aftershocks on average than other earthquakes of this magnitude. In terms of the future potential for larger earthquakes in this area, it appears that when there are more earthquakes, the chance of a large earthquake is greater and the chance of damage is increased[9]. Earthquake shaking could damage the 10-Acre Pond liner or berm and result in a catastrophic failure and release of highly contaminated pond water.

IV. ENDANGERMENT DETERMINATION UNDER CERCLA SECTION 104: POLLUTANT OR CONTAMINANTS

Actual or threatened releases of hazardous substances from the 10-Acre Pond may present an imminent and substantial endangerment to public health, or welfare, or the environment.

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[9] USGS National Earthquake Information Center, M 5.3 - 12km E of Soda Springs, Idaho, September 2, 2017 https://earthquake.usgs.gov/earthquakes/eventpage/us2000aeky - executive

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

Based on an analysis of the nature and extent of the contamination associated with the 10-Acre Pond, three removal action alternatives were identified and analyzed for effectiveness, implementability and cost. These alternatives are listed below:

- Alternative 1 – Off-Site Disposal of Water and Sediment
- Alternative 2 – Off-Site Disposal of Water and On-Site Disposal of Sediment
- Alternative 3 – On-Site Treatment and Disposal of Water and On-Site Disposal of Sediment

Based on this analysis, the proposed response action is Alternative 2—i.e., to remove the 10-Acre Pond and eliminate the potential source of future environmental contamination.

Table 3 presents a cost-benefit analysis of the selected removal action alternatives.

TABLE 3 – Cost-Benefit Analysis of Removal Action Alternatives

	Alternative 1- Offsite Disposal of Water and Sediment	Alternative 2 - Off-Site Disposal of Water and On-Site Disposal of Sediment	Alternative 3 - On-Site Treatment and Disposal of Water and On-Site Disposal of Sediment
Cost	$16,157,500	$5,582,100	$6,289,350
Pros	• All media containing COCs from the 10-Acre Pond are removed from the Site. • No impacts to Site redevelopment.	• Lowest cost. • Water containing COCs is removed from the site. • Media containing COCs consolidated near existing repositories already containing COCs. • Provides opportunity for consolidation of solid media from other areas of the Site. • Greatly reduced volume of media containing COCs transported over public roadways.	• Lower cost. • Media containing COCs consolidated near existing repositories already containing site COCs. • Water containing COCs is treated and the residual solids removed from the Site. • Provides opportunity for consolidation of solid media from other areas of the Site. • Minimal volume of media containing COCs transported over public roadways.

TABLE 3 – Cost-Benefit Analysis of Removal Action Alternatives

	Alternative 1- Offsite Disposal of Water and Sediment	Alternative 2 - Off-Site Disposal of Water and On-Site Disposal of Sediment	Alternative 3 - On-Site Treatment and Disposal of Water and On-Site Disposal of Sediment
Cons	• High Cost. • Transportation of media containing COCs over public roadways. • Doesn't provide opportunity to consolidate solid media from other areas of the Site.	• Sediments containing COCs remain on-Site. • Transportation of media containing COCs over public roadways. • May reduce the available area at the Site for redevelopment. • Long-term Operation, Monitoring, Maintenance and Reporting for Repository.	• Sediment containing COCs remain on-Site. • Additional infrastructure needed for treatment of water. Disposal of excess treated water. • Variability of pond water chemistry can lead to additional treatment costs. • May reduce the available area at the site for redevelopment. • Long-term Operation, Monitoring, Maintenance and Reporting for Repository.

Notes:
1. Construction costs are for disposal of water and sediments from the 10-Acre Pond removal action only.
2. The basis of cost estimate assumes a GCL for the on-Site repository.
3. Clast 3 AACE International cost estimates (-20% to + 30%).

10-Acre Pond Removal

As stated in Section V.A.1, the proposed response action is Alternative 2—i.e., to remove the 10-Acre Pond and eliminate the potential source of future environmental contamination, including:

- Construction of an on-Site repository with a bottom liner;
- Removal and disposal of approximately 1.1 million gallons of residual pond liquids;
- Removal and on-Site disposal of approximately 30,000 cubic yards of pond solids and liners;
- Removal of approximately 16,000 cubic yards of impacted soil beneath the pond liner; and
- Backfilling, compacting, regrading, covering and revegetation of the former pond area.

The following paragraphs describe each component of the proposed response action. A Remedial Action Work Plan (RAWP) and Confirmation Soil Sampling and Analysis Plan (CSSAP) will be prepared to provide more detailed design specifications and procedures.

Construction of the On-Site Repository

The TCRA proposes to construct an on-Site repository near the former East and West 5-Acre Ponds (Figure 5) because of its proximity to the existing on-Site Landfill.[10] This location can comply with Subtitle D siting requirements under 40CFR Part 258, Subpart B regarding floodplains, wetlands, fault zones demonstrating Holocene movement, airport locations, and unstable soils. Siting the repository in this location is recommended because: (1) it is cost effective in comparison to the cost to transport and dispose of solids from the 10-Acre Pond off-Site (see Tables 3 and 4), (2) it is a contiguous footprint with the existing on-Site Landfill, and (3) allows waste materials to be consolidated in one area on-Site to facilitate future redevelopment of the remaining Site property.

The on-Site repository will be constructed to accept at a minimum, the estimated 60,000 cubic yards of material to be generated by closure of the 10-Acre Pond and Site demolition activities. Additionally, the proposed repository geometry would allow for future upward expansion[11] to accommodate additional materials generated from future remedial action removals. The repository will likely be constructed in accordance with Subtitle D requirements which includes the installation of a 60-mil HDPE primary liner and a geosynthetic clay liner (GCL) secondary liner.[12] A leachate collection system comprised of a geocomposite drainage net will be incorporated into the design to maintain less than 12-inches of head from leachate on the liner. A vertical riser sump will extend through the cover to allow any generated leachate to be removed via pumping for disposal off-Site. The repository cover system will consist of a GCL liner, 60-mil HDPE liner, 18 inches of soil and six inches of topsoil. The cover system will have gentle slopes to promote surface water drainage and to minimize infiltration and erosion. Future leachate collection from the on-Site repository will be placed in on-Site storage tanks for off-Site disposal initially and if applicable may be treated on-Site using a permanent groundwater treatment system installed as part of the final Site remedy.

Table 4 presents a cost comparison of the alternatives.

[Table 4 is on the next page]

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[10] RCRA Landfill. There is no RCRA permit for the Site; however, the term "RCRA Landfill" has historically been used because this waste repository was reportedly designed and constructed to meet RCRA Subtitle D design standards.

[11] The repository geometry is such that the depressed portion of the repository is sized to contain the anticipated volume of material generated from removal of the 10-Acre Pond, including materials such as soils removed from the building demolition activities and west calcine area used to remove moisture from the 10-acre pond sediments via blending. As an overall cost savings measure and taking into consideration the overall future Site remediation efforts/removal actions, the repository will be designed to allow for upward expansion. Upward expansion of 10 feet with 5:1 side slopes would allow for an additional 200,000 cubic yards of capacity to account for Site remediation efforts/removal actions after the SRI, FFS and ROD Amendment are finalized. An upward expansion of 10 feet would be at a final elevation, which is slightly lower than the existing East Calcine Repository. The 5:1 side slopes of the repository are gentle enough to reduce erosion potential. Further, because the repository will be sloped and capped, precipitation will not accumulate in the repository.

[12] The implementability and costs associated with the use of a compacted clay liner (CCL) will be evaluated further in RAWP (i.e., work plan and design document). Initial evaluations indicate the use of a CCL will extend the completion schedule into 2019 and affect the overall project costs (i.e., costs will increase).

TABLE 4 – Cost Comparison of Action Alternatives[1]

	Construction Cost	Design and Construction Management (15%)	Total Costs
Infrastructure (All Alternatives)	**$99,000**	**$14,850**	**$113,850**
Water Treatment Alternatives			
Alternative A - Off-Site Disposal of Untreated Water	**$2,295,000**	**$344,250**	**$2,639,250**
Alternative B - On-Site Water Treatment	**$2,910,000**	**$436,500**	**$3,346,500**
Sediment Disposal Alternatives			
Alternative A - On-Site Repository			
Repository Construction[1, 2]	$1,550,000	$232,500	$1,782,500
On-Site Disposal[1]	$910,000	$136,000	$1,046,500
	$2,460,000	**$369,000**	**$2,829,000**
Alternative B-Off-Site Disposal	**$14,050,000**	**$2,107,500**	**$16,157,500**

Notes:
1. Construction costs are for disposal of water and sediments from the 10-Acre Pond removal action only.
2. The basis of cost estimate assumes a GCL for the on-Site repository.

Removal of Residual Pond Liquids

The residual liquids in the 10-Acre Pond will be removed via pumping from a constructed sump and disposed of at a hazardous waste facility for treatment at either the U.S Ecology Grand View, Idaho facility or the Clean Harbors Aragonite, Utah facility. The timing of the residual liquid removal will correspond with the dry season (July and August) to minimize the quantity of liquid requiring disposal. Sludge and filtered particles remaining once pumping of the liquids is complete, will be dried and stabilized for disposal in the on-Site repository.

Removal of Pond Solids[13]

Pond solids will be consolidated within the lined pond utilizing low-ground-pressure, tracked equipment to push the material into windrows to allow dewatering prior to transport of the solids to the on-Site repository cell. Sludge materials on the existing pond liner will be carefully scraped with HDPE booms attached to blades of excavating equipment to minimize any damage to the existing liner. Sludge will be placed into windrows and allowed to dewater. Once dewatered, pond solids and sludge will be stabilized to obtain optimal moistures for compaction and transported to the on-Site repository cell for disposal. Previous analyses have indicated stabilization of the pond solids can be accomplished utilizing on-Site soils at a mix

[13] It is important to note (1) that a large portion of the pond solids are not under water during the dry season; (2) the pond solids are accessible to blending and mixing with the west calcine area soils and other on-Site soils generated from the building demolition activities; and (2) can be pushed into windrows. The sludge and salts can also be blended and mixed but require additional time for drying. Previous geotechnical testing of the sludge/salts has indicated that adequate moisture control can be achieved by gravity draining and mixing with local soils.

ratio of 2:1 pond solids to soil. The west calcine area soils and other on-Site soils generated from the building demolition activities are anticipated for use in blending and moisture stabilization. Once all the pond solids and liquids have been removed from the liner, the liners will be removed and placed in the on-Site repository. Polymers were evaluated but based on numerous vendor feedback, the use of polymers for dewatering and/or mixing of the pond water or sediments is not recommended because of the presence of evaporite salts. The overall project schedule is critical to the implementation of the removal action. The schedule has been and will continue to be examined closely and progress will be measured.

Cleanup Confirmation/Extent of Contamination Soil Sampling

After removal of the pond solids and existing liners, confirmation soil samples will be collected from the footprint of the 10-Acre Pond for comparison with current EPA RSLs for the industrial soil and protection of groundwater. Surface soil samples will be collected on an approximate 50-by-50-foot sampling grid using systematic sampling techniques (sample collected at center of each grid). Two samples will be collected at each surface soil sampling location (at 0–6 inch and 6–12 inch depth intervals) and analyzed for total concentrations of COCs. Based on two samples per 50-by-50-foot sampling grid over an area of 10 acres, a total of 348 samples would be collected and analyzed. If analytical results from the surface samples indicate concentrations of COCs that exceed applicable risk-based criteria, soil and rock coring will be completed to assess the nature and extent of subsurface contamination.

All confirmation soil sampling and analysis will be conducted in accordance with an EPA approved CSSAP to be prepared by the Multistate Trust prior to beginning confirmation sampling activities.

Reclamation of the Existing 10-Acre Pond Footprint[14]

Once confirmation soil sampling has confirmed the horizontal and vertical excavation extents and contaminated soils have been removed from the 10-Acre Pond footprint, the area will be regraded, backfilled, and compacted utilizing gentle slopes to promote positive drainage away from the former 10-Acre Pond footprint and to minimize erosion. The area will then be revegetated with native grass species.

Post-Removal Site Controls

Site access is currently controlled using fences, gates, and signage to prevent public access. Fencing will be installed around the perimeter of the new on-Site waste repository to prevent unauthorized access. Institutional controls will be implemented as part of the overall final Site remedy.

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[14] The existing 10-Acre Pond footprint was constructed generally above the surrounding existing grade; therefore, minimal material for backfill is expected to be necessary for restoration. The backfill material will be sourced from on-Site either from the agricultural land or other areas that are not in the former Facility footprint. The backfill soils will be analyzed for the Site COCs and other required geophysical characteristics.

2. Contribution to Remedial Performance

In October 1989, the Site was listed on the National Priorities List by EPA. A ROD was signed in 1995 and amended in 2000 to establish the procedural framework for developing, implementing, and monitoring CERCLA response actions. The actions proposed in this time-critical action memorandum will achieve the general RAOs associated with the groundwater by mitigating the immediate potential threat to human health and the environment. The objectives will be met by removing a potential imminent and ongoing threat to shallow groundwater from the elevated COC concentrations documented in the pond water and sediments in the 10-Acre Pond.

3. Applicable or relevant and appropriate requirements (ARARs)

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 C.F.R. § 300.415(j), on-Site removal actions conducted under CERCLA are required to attain Applicable or Relevant and Appropriate Requirements (ARARs) to the extent practicable, considering the exigencies of the situation. Off-site removal activities need only comply with all applicable federal and state laws, unless there is an emergency. This cleanup is being conducted as a TCRA.

Under CERCLA section 121 (e)(1), federal, state or local permits are not required for the portion of any removal or remedial action conducted entirely on-Site as defined in 40 C.F.R.§ 300.5. See also 40.C.F.R. §§ 300.400(e)(1) & (2). On-Site is defined as the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. On-Site response actions must comply, to the extent practicable, with substantive but not administrative requirements of ARARs. Off-Site activities such as transportation and disposal of wastes are required to comply with all applicable requirements, including the administrative portions.

Depending upon results of further investigation of the Site, additional ARARs may be applicable and/or further refined. The EPA On-Scene Coordinator (OSC)[15] is in communication with the State of Idaho to develop an approach consistent with all ARARs as practicable.

As provided in CERCLA Section 121(d)(3) and the Off-site Rule at 40 C.F.R. 300.440 et seq., the off-Site transfer of any hazardous substance, pollutant or contaminant generated during the response action will be sent to a treatment, storage or disposal facility that is in compliance with applicable federal and state laws and has been approved by the EPA for acceptance of CERCLA waste.

Federal and State of Idaho ARARs:

The following tables (Tables 5 and 6) present a list of requirements tentatively identified by the EPA and IDEQ as potential ARARs for the proposed removal action.

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[15] The designated remedial project manager (RPM) will act as the OSC.

Statutes and regulations, and their citations, included in the following tables included below are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and regulations does not indicate acceptance of the entire statute or regulation as potential ARARs; rather only the substantive provisions of the requirements cited in these tables are potential ARARs. Because Idaho has incorporated EPA's RCRA regulations by reference (*see* IDAPA 58.01.05) citations to RCRA are used in the following tables.

[Tables 5 and 6 are on the following pages]

TABLE 5 – Federal and State Chemical Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination
Federal					
1	Safe Drinking Water Act (SDWA) of 1974, National Primary Drinking Water Standards, and Maximum Contaminant Levels for Inorganic Contaminants	42 U.S.C. 300(f) et seq. 40 CFR 141.61 40 CFR 141.62	Establishes maximum contaminant levels (MCLs) as criteria for groundwater and surface water that are or may be used for drinking water. The standards are designed to protect human health from the adverse effects of organic contaminants in the drinking water.	Applicable to groundwater at the Site, with respect to Arsenic. There are no promulgated standards specified under the SWDA which are exceeded for the other COCs. The Site-specific risk based concentrations apply to the remaining COCs.	Applicable
State					
1	Idaho Water Quality Standards	IDAPA 58.01.02	Surface water quality standards and waste water treatment requirements, including: water quality criteria for aquatic life use designations (.250), designations of surface waters found within Blackfoot Basin (.150), general surface water quality criteria (.200), antidegredation policy (.051), and mixing zone policy (.060).	Water quality standards are potentially applicable for surface waters on-Site or affected by the selected remedy.	Applicable
2	Idaho Ground Water Quality Rule	IDAPA 58.01.11.200	Protects groundwater for beneficial uses including potable water supplies, establishes use classifications, and establishes water quality criteria for ground water.	Applicable to groundwater at the Site.	Applicable
3	Idaho Rules for Public Drinking Water Systems	IDAPA 58.01.08	Regulates quality and safety of public drinking water.	Potentially applicable if any of the Site water is a public drinking water source; otherwise, substantive requirements would likely be relevant and appropriate.	Potentially applicable and/or relevant and appropriate
4	Rules and Standards for Hazardous Waste	IDAPA 58.01.05	Rules and standards for hazardous waste. Identifies characteristic and listed hazardous wastes and provides rules for hazardous waste permits.	Potentially relevant and appropriate if hazardous waste is identified or generated during implementation of the selected remedy.	Potentially relevant and appropriate
5	Rules for the Control of Air Pollution	IDAPA 58.01.01 (including IDAPA 58.01.01.650 and .651)	Rules providing for the control of air pollution in Idaho.	Potentially applicable depending on the selected remedy.	Potentially applicable

TABLE 5 – Federal and State Chemical Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination
6	Idaho Risk Evaluation Manual for Petroleum Releases	IDEQ (2004b) Available online at https://www.deq.idaho.gov/media/967298-risk_evaluation_manual_2004.pdf	Provides guidelines and criteria to apply in risk-based decision making for petroleum releases.	Potentially relevant and appropriate if during the remedial action petroleum is released or a petroleum release is identified.	Potentially relevant and appropriate

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
Federal						
1	Migratory Bird Treaty Act	16 U.S.C. 703 et seq.	Protects all migratory bird species. It shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof.	The prohibition is relevant and appropriate to areas of the Site where remedial action is selected that may provide habitat to migratory birds.	Potentially applicable and/or relevant and appropriate	Action
2	Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds	Executive Order 13186 of January 10, 2001	Encourages federal agencies to integrate migratory bird conservation principles into plans and actions.	TBC	Potentially applicable and/or relevant and appropriate	Action

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
3	RCRA Subtitle C — Characterization of Solid Waste (all primary and secondary wastes)	40 CFR 262.11(a) and (b)	Must determine if solid waste is a hazardous waste using the following method: • Should first determine if waste is excluded from regulation under 40 CFR 261.4; and Must then determine if waste is listed as a hazardous waste under subpart D 40 CFR Part 261.	Applicable to characterization of waste that may be encountered during the removal action.	Potentially applicable and/or relevant and appropriate	Action
4	RCRA Subtitle C — Characterization of Solid Waste (all primary and secondary wastes)	40 CFR 262.11(c)	Must determine whether the waste is (characteristic waste) identified in subpart C of 40 CFR part 261by either: (1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by the Administrator under 40 CFR 260.21; or (2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.	Applicable to characterization of waste that may be encountered during the removal action.	Potentially applicable and/or relevant and appropriate	Action
5	RCRA Subtitle C — Characterization of Solid Waste (all primary and secondary wastes)	40 CFR 262.11(d)	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Applicable to characterization of waste that may be encountered during the removal action.	Potentially applicable and/or relevant and appropriate	Action
6	RCRA Subtitle C — Determinations for management of hazardous waste	40 CFR 268.9(a)	Must determine each EPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 CFR 268 *et seq.*. *Note:* This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter.	Applicable to generation RCRA characteristic hazardous waste for storage, treatment or disposal	Potentially applicable and/or relevant and appropriate	Action

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
7	RCRA Subtitle C — Determinations for management of hazardous waste	40 CFR 268.9(a)	Must determine the underlying hazardous constituents [as defined in 40 CFR 268.2(i)] in the characteristic waste.	Applicable to generation of hazardous waste for storage, treatment or disposal	Potentially applicable and/or relevant and appropriate	Action
8	RCRA Subtitle C — Determinations for management of hazardous waste	40 CFR 268.7(a)	Must determine if the hazardous waste meets the treatment standards in 40 *CFR* 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. *Note:* This determination can be made concurrently with the hazardous waste determination required in 40 CFR 262.11.	Applicable to generation of hazardous waste for storage, treatment or disposal	Potentially applicable and/or relevant and appropriate	Action
9	RCRA Subtitle C — Determinations for management of hazardous waste	40 CFR 268.7(a)	Must comply with the special requirements of 40 *CFR* 268.9 in addition to any applicable requirements in *CFR* 268.7.	Applicable to generation of waste or soil that displays a hazardous characteristic of ignitability, corrosivity, reactivity, or toxicity for storage, treatment or disposal	Potentially applicable and/or relevant and appropriate	Action
10	RCRA Subtitle C — Disposal of RCRA hazardous waste in a land-based unit	40 CFR Part 268	Must comply with land disposal restrictions	Applicable to placement of waste in on-site waste repository	Potentially applicable and/or relevant and appropriate	Action
11	Landfill Cover Design and Construction	*EPA Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments*, EPA OSWER 530 – SW – 89 –047, (July 1989)	This document recommends and describes a design for landfill covers that will meet the requirements of RCRA regulations. It is a multilayered system consisting, from the top down, of: • a top layer of at least 60 cm of soil, either vegetated or armored at the surface; • a granular or geosynthetic drainage layer with a hydraulic transmissivity no less than 3 x 10"5 cm /sec; and	Applicable to construction of a RCRA hazardous waste landfill final cover	Potentially applicable and/or relevant and appropriate	To Be Considered

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
			• a two–component low permeability layer comprised of (1) a flexible membrane liner installed directly on (2) a compacted soil component with an hydraulic conductivity no greater than 1 x 10–7 cm/sec. Optional layers may be added, e.g., a biotic barrier layer or a gas vent layer, depending on the need.			
12	RCRA Subtitle D — Disposal of Nonhazardous Solid Waste	42 U.S.C. 6901 et seq.; 40 CFR Part 258	Provides criteria for cover material, run-on/runoff control systems, access control, and liquid restrictions.	The substantive requirements are relevant and appropriate to remedial actions that involve the consolidation of mine wastes in repositories or beneath protective barriers.	Potentially applicable and/or relevant and appropriate	Action
13	RCRA Subtitle D — RCRA Criteria for Classification of Solid Waste Disposal Facilities and Practices	42 U.S.C. 6901 et seq.; 40 CFR 257	Certain criteria are required to be met by solid waste disposal facilities and practices, such as not restricting the base flow of the floodplain, not taking threatened or endangered species, and not causing a discharge to navigable waters.	The substantive requirements are relevant and appropriate to remedial actions that involve the consolidation of on-Site wastes in repositories or beneath protective barriers.	Potentially applicable and/or relevant and appropriate	Action
14	RCRA: Subtitle C — Transportation of hazardous waste *off–site*	40 CFR 262.10(h)	Must comply with the generator standards of Part 262 including 40 CFR 262.20–23 for manifesting, Sect. 262.30 for packaging, Sect. 262.31 for labeling, Sect. 262.32 for marking, Sect. 262.33 for placarding.	Preparation and initiation of shipment of hazardous waste off–site	Potentially applicable and/or relevant and appropriate	Action
15	Best Management Practices for Soil Treatment Technologies	OSWER, 1997	Provides technologies for controlling cross-media transfer of contaminants during materials handling activities.	TBC during excavation of contaminated soil.	Potentially applicable and/or relevant and appropriate	Action
16	Clean Air Act	42 U.S.C. 7401 *et seq.*	Requires minimization of the harmful effects to air quality from excavation, construction, and other removal activities.	The substantive requirements of these regulations are relevant and appropriate to remedial actions that may involve the generation of fugitive dust (e.g., removal, transport, and consolidation of contaminated soil / sediments).	Potentially applicable and/or relevant and appropriate	Action

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
17	Clean Water Act (402)/ National Pollutant Discharge Elimination System	33 U.S.C. 1251 40 CFR 122 and 125	Specifies requirements under 40 CFR 122 for point-source discharge of stormwater from construction sites to surface water and provides for Best Management Practices such as erosion control for removal and management of sediment to prevent run-on and runoff.	May be applicable if the selected remedy results in point source discharges.	Potentially applicable and/or relevant and appropriate	Action
State						
1	Protection of Birds	Idaho Code Ann. § 36-1102	Prohibits the "take" or intentional disturbance or destruction of eggs or nests of any "game, song, rodent killing, insectivorous or other innocent bird." The prohibition does not apply to English Sparrows or starlings.	Potentially applicable during remedial action.	Potentially applicable	Action
2	Non-point Source Discharges	IDAPA 58.01.02.350	Regulates non-point source discharges, designates approved BMPs and provides additional protection for outstanding resource waters.	May be applicable if the selected remedy results in non-point source discharges.	Potentially applicable	Action
3	Point Source Discharges	IDAPA 58.01.02.400-.401	Provides limits and restrictions including possible limits on temperature and flow rates for point source discharges.	May be applicable if the selected remedy results in point source discharges.	Potentially applicable	Action
4	Storage of Hazardous and Deleterious Materials	IDAPA 58.01.02.800	Prohibits the storage, disposal or accumulation of hazardous and deleterious materials "adjacent to or in the immediate vicinity of state waters" without adequate measures and controls to insure the materials will not enter state waters.	May be relevant and appropriate if the remedial action results in the storage of hazardous and deleterious materials near state waters.	Potentially relevant and appropriate	Action
5	Well Construction Standard Rules	IDAPA 37.03.09	Regulates well construction and abandonment.	May be applicable if the selected remedy includes additional wells.	Potentially applicable	Action
6	Best Management Practices (BMPs) and Reclamation for Surface Mining Operations	IDAPA 20.03.02.140	Provides BMP and reclamation standards for surface mining operations, including sand and gravel mining.	May be applicable depending on the selected remedy. BMPs may also be relevant and appropriate to remediation activities (i.e. grading, re-contouring, and revegetation).	Potentially applicable and/or relevant and appropriate	Action
7	Idaho Water Quality Standards and	IDAPA 58.01.02	Requirements for actions involving effluent discharges to surface water.	May be applicable if water treatment is part of the selected remedy.	Potentially applicable	Action

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
	Wastewater Treatment Requirements					
8	Solid Waste Management Rules	IDAPA 58.01.06	Provides substantive requirements for operation and closure of solid waste management facilities.	Only material uniquely associated with phosphate mining is being addressed in the remediation so these requirements are not applicable because the Site is not a solid waste management facility. See IDAPA 58.01.06.001.03(b)(iv). Some requirements may be relevant and appropriate with regard to regulated solid waste generated during the remedial action.	Potentially relevant and appropriate	Action
9	Hazardous Waste and Hazardous Waste Management Act of 1983	IDAPA 58.01.05 1993 Session Law, Ch. 291, Sections 1-8	Adopts federal RCRA regulations concerning the identification of hazardous waste and standards applicable to generators and transporters of hazardous waste as well as standards for owners and operators of hazardous waste treatment, storage and disposal facilities.	Potentially applicable for management of investigation derived wastes and remediation wastes.	Potentially applicable	Action
10	Idaho Rules for Control of Fugitive Dust	IDAPA 58.01.01.650-651	Provides practices for controlling fugitive dust emissions, including use of water or chemicals, application of dust suppressant, and covering trucks.	May be applicable during remedial action if construction practices generate fugitive dust.	Potentially applicable	Action
11	Idaho Toxic Air Pollutants	IDAPA 58.01.01.585-586	Requirements for maintaining air quality (none currently nor will they be likely associated with any remedial action).	Potentially applicable depending on the selected remedy.	Potentially applicable	Action
12	Preservation of Historical Sites	Idaho Code §§ 67-4111 to -4131 and 67-4601 to -4619	Requirements for protection of public lands and preservation of historical or archaeological sites in consideration of waste disposal.	Requirements may be applicable if historical or archeological sites are present and/or may be disturbed during the remedial action.	Potentially applicable	Location
13	Idaho Classification and Protection of Wildlife Rule	IDAPA 13.01.06.300	Classifies fish and wildlife species; identifies threatened or endangered species; and specifies wildlife species that are protected from taking and possessing.	To be considered during ecological risk assessment.	Applicable	Location

TABLE 6 – Federal and State Location and Action Specific ARARs

	Statutes, Regulations, Standards, or Requirements	Citations or References	General Description	Site-Specific Comments	Determination	Location or Action Specific
14	Idaho Uniform Environmental Covenants Act	Idaho Code §§55-3001 to -3015	Allows recordation of an environmental covenant, which is a written agreement where the parties bind themselves and their successors in interest to the land, to comply with activity and use limitations.	Any environmental covenant must follow this Act	Applicable	Action
15	IDEQ Area Wide Risk Management Plan	IDEQ (2004a)	Recommends removal action goals and action levels for addressing releases and impacts from historical phosphate mining operations in southeast Idaho.	May be taken into consideration in developing risk-based cleanup levels.	TBC	Action
16	Variances from water quality standards	IDAPA 58.01.02.260	Establishes procedures and requirements for obtaining a water quality variance.	Potentially applicable if Site-specific variances are proposed for a particular location or source.	Potentially applicable	Action

4. Project Schedule

Planning for this removal action will commence immediately following approval of this Action Memorandum. A RAWP and CSSAP will be developed by the Multistate Trust and will take approximately two months to complete. Development of bid documents and other subcontracting documents needed to procure a construction subcontractor is anticipated to take an additional two months to complete. Construction of the on-Site repository is anticipated to begin in Spring 2018 to ensure the repository is completed prior to commencing removal of pond solids. To minimize the volume of pond liquids requiring treatment, pond dewatering and sediment drying are anticipated to begin in late May 2018 and last through August 2018 (i.e., typical dry period), when the volume of liquid in the pond is typically at its lowest point. Once construction begins, it is anticipated the removal action will take a total of eight months to complete, with demobilization in late-November 2018. The After Action Report is anticipated to be submitted to EPA by late-February 2019. The confirmation soil sampling results will also be incorporated into the final SRI report. The project schedule is included in Attachment 1.

5. Estimated Costs

The proposed work will be conducted by the Multistate Trust under the oversight of the EPA, as the Lead Agency, and be funded through the Environmental Cost Account of the Multistate Trust[16]. The estimated costs are presented in Table 7 below.

TABLE 7 – Removal Action Project Estimate

Construction Costs (Multistate Trust)		
Environmental Cost Account (ECA) Cost Center C: New Environmental Actions – 10-Acre Pond Removal Action Costs	$	5,582,100
TOTAL REMOVAL ACTION PROJECT ESTIMATE	$	5,582,100

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this response action is significantly delayed or not taken, hazardous substances exceeding established risk-based PSLs and the EPA RSL for tapwater have the potential to be released to the groundwater because the integrity of the 10-Acre Pond liner is uncertain the status of leakage remains unknown. A release of hazardous substances may increase the likelihood of hazardous substances further migrating in the environment and potentially impact the City of

[16] There is no project ceiling because the proposed work is funded through the Environmental Cost Account of the Multistate Trust.

Soda Springs drinking water supply. Additionally, the COCs in the 10-Acre Pond water would continue to pose a risk to avian receptors.

VII. OUTSTANDING POLICY ISSUES

No outstanding policy issues have been determined at this time.

VIII. ENFORCEMENT

It is expected that the proposed actions will be conducted using funds from the Soda Springs Environmental Cost Account pursuant to the Settlement Agreement. Such funds will be included in the 2018 Multistate Trust Budget for review and approval by EPA, as Lead Agency for the Site, pursuant to the requirements of Section 3.2.4 of the Multistate Environmental Response Trust Agreement.

This Site has no solvent potentially responsible parties to pursue. The Multistate Trust owns and manages the Site in a trust for the benefit of the United States and the State of Idaho pursuant to the Settlement Agreement. The Multistate Trust owns the property, carries out administrative and property management functions at the Site, manages the Environmental Cost Account for the Site, and manages and funds environmental actions at the Site subject to the approval of the United States and the State of Idaho. The Multistate Trust is not currently a PRP; rather, it has the sole responsibility of funding and managing the cleanup, under the oversight of the United States and the State of Idaho. Oversight costs are reimbursed pursuant to the Settlement Agreement.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Kerr-McGee Chemical Corp. – Soda Springs Plant Site located in Soda Springs, Caribou County, Idaho to address immediate threats to human health and the environment. This document was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions in the 10-Acre Pond and at the Site meet the NCP Section 300.415 criteria for a removal action. This TCRA is to be funded in accordance with the Settlement Agreement under which the Multistate Trust was established. The total project ceiling cost of $5,582,100 if approved will be paid from the Soda Springs Environmental Cost Account, which is managed and held by the Multistate Trust for the benefit of the United States and the State of Idaho. I recommend your approval of the proposed removal action.

APPROVED: Sheryl Bilbrey Date: 1/22/18

Sheryl Bilbrey, Director
Office of Environmental Cleanup

DISAPPROVED: _____ Date: _____

Sheryl Bilbrey, Director
Office of Environmental Cleanup

ATTACHMENTS

Figures

Figure 1 – Location Map
Figure 2 – 10-Acre Pond Site Map
Figure 3 – Historical 10-Acre Pond Imagery
Figure 4 – Site Windrose Data
Figure 5 – Location and Proposed Layout of On-Site Repository
Figure 6 – Shallow Groundwater Elevation Map
Figure 7 – Shallow Groundwater Molybdenum Plume Map
Figure 8 – Shallow Groundwater Vanadium Plume Map
Figure 9 – Surface Water Features
Figure 10 – Molybdenum Concentrations in Surface Water Downgradient of 10-Acre Pond
Figure 11 – Vanadium Concentrations in Surface Water Downgradient of 10-Acre Pond

Attachments

Attachment 1 – Schedule

Figures

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AERIAL IMAGERY SOURCE: 2017 GOOGLE EARTH IMAGE DATE: 7/19/2016

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LOCATION MAP

FIGURE
1

UPDATE TIME: 11:21 AM
MRHODES\HEL\20171109\F:\DROPBOX\SODA SPRINGS MULTISTATE TRUST SITE\TCAM 10 ACRE POND\FIGURES.DWG

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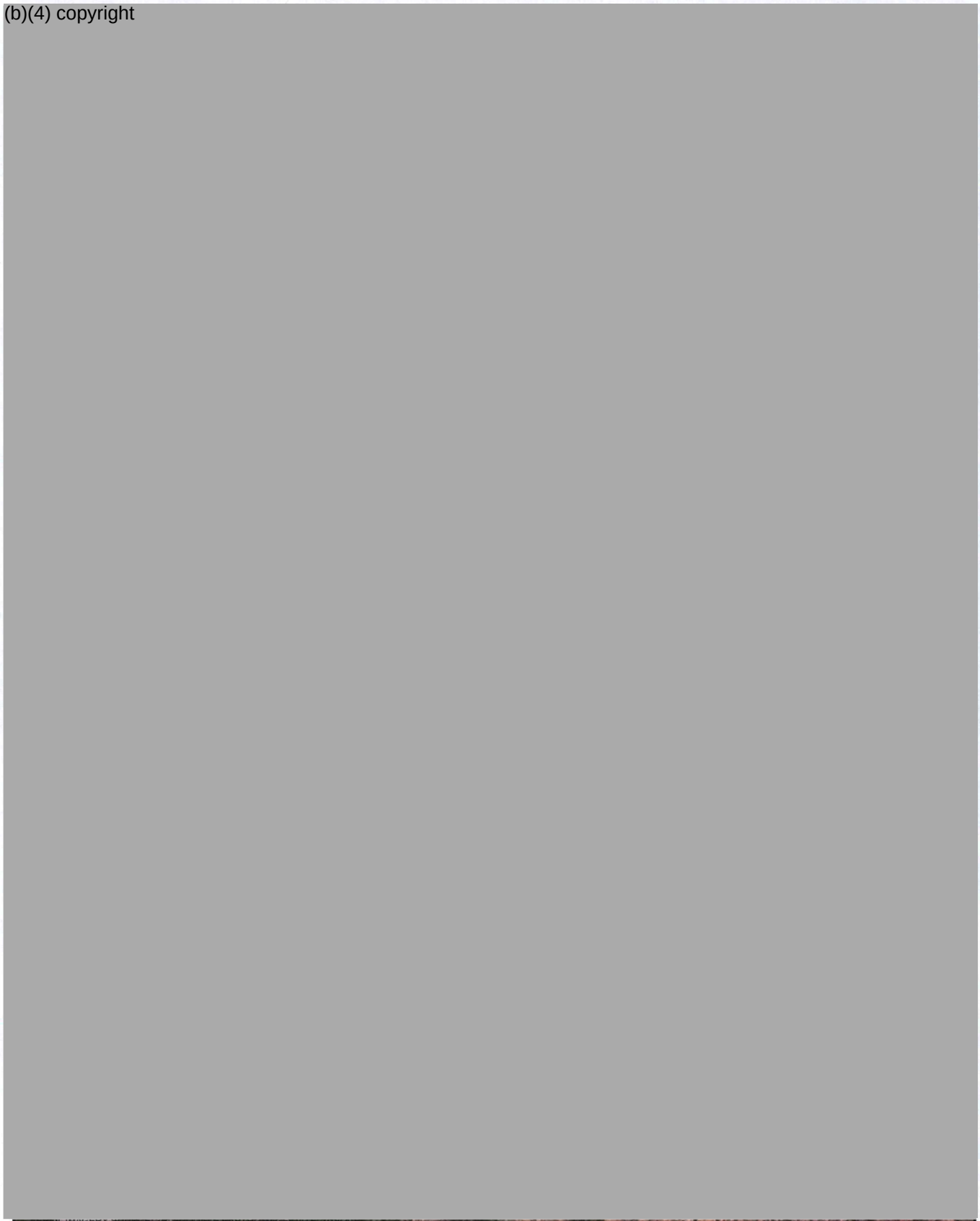

(Approximate Only)

PREPARED FOR: GREENFIELD ENVIRONMENTAL MULTISTATE TRUST,LLC, TRUSTEE OF THE MULTISTATE RESPONSE TRUST	**10-ACRE POND SITE MAP**	FIGURE **2**

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MRHODES\HEL\20171109\F:\DROPBOX\SODA SPRINGS MULTISTATE TRUST SITE\TCAM 10 ACRE POND\FIGURES.DWG

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1998

2004

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2009

2013

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2016

AERIAL IMAGERY SOURCE: 2017 GOOGLE EARTH

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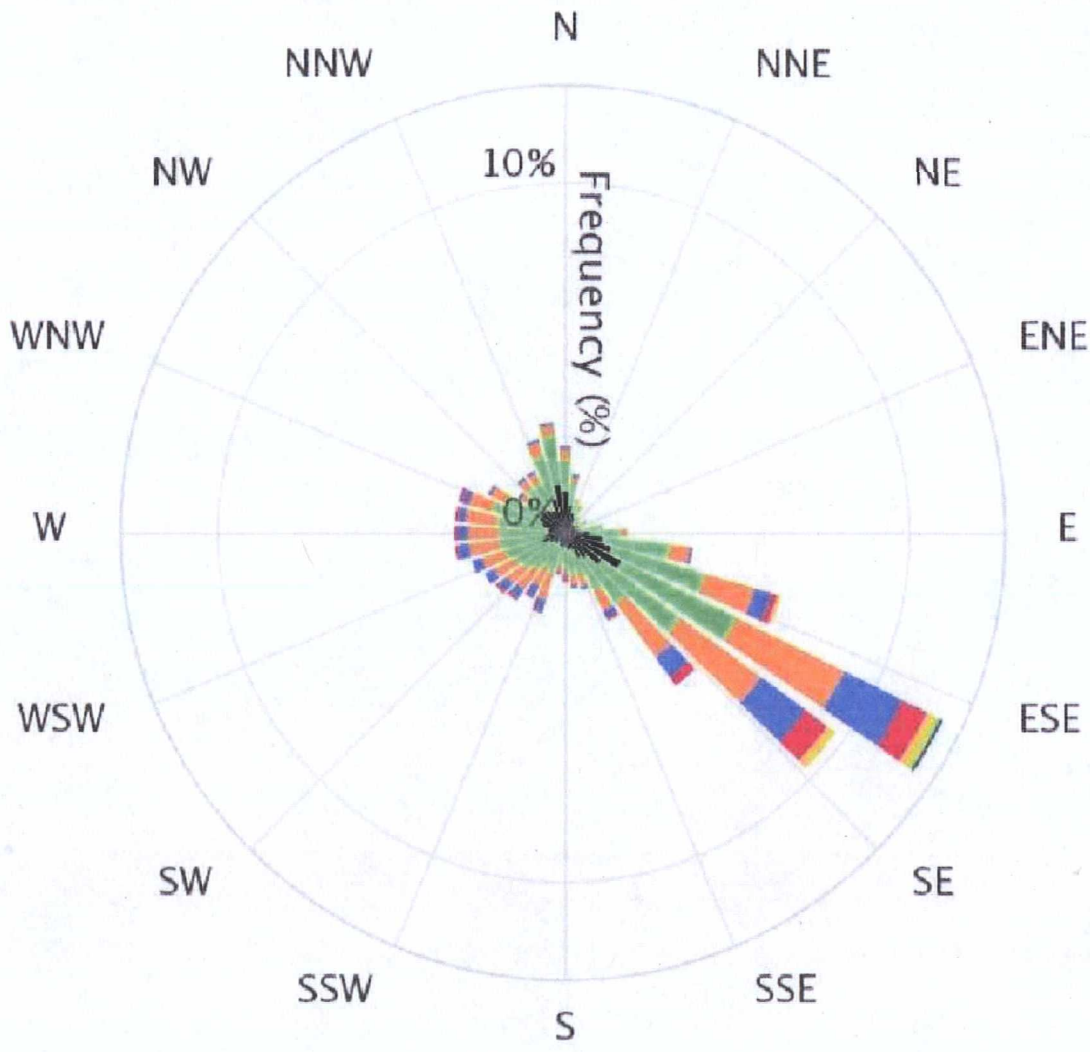

Wind Speed (mph)

- 1.3 – 4
- 4 – 8
- 8 – 13
- 13 – 19
- 19 – 25
- 25 – 32
- 32 – 39
- 39 – 47
- 47 –

WINDROSE DATA FROM SODA SPRINGS ALLEN H. TIGERT AIRPORT

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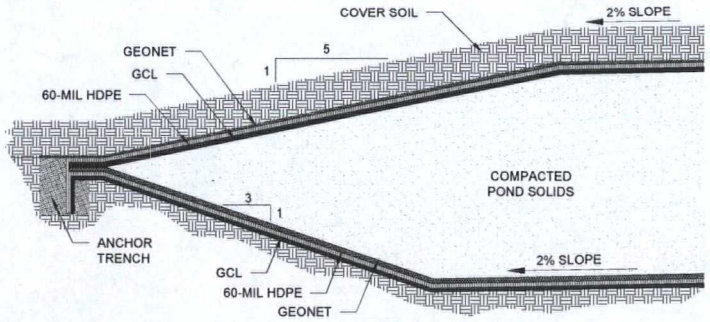
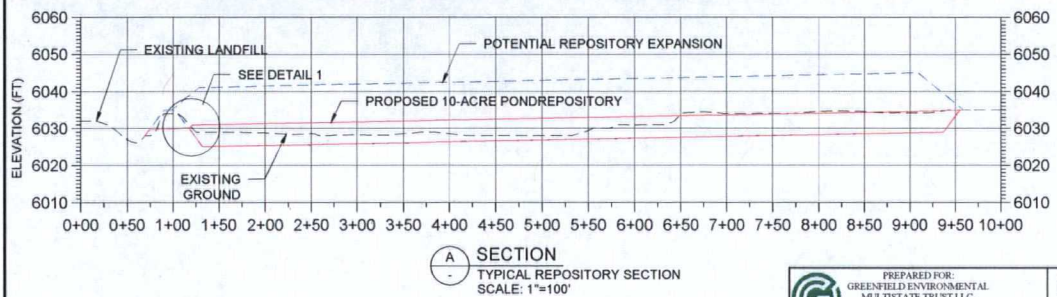
PLAN VIEW - PROPOSED REPOSITORY
SCALE 1"=250'



1 DETAIL
TYPICAL REPOSITORY LINER DETAIL
SCALE: NTS

NOTE: THIS LANDFILL HAS ALSO BEEN REFERRED TO AS THE "RCRA LANDFILL" IN THE VARIOUS SITE DOCUMENTS. THERE IS NO RCRA PERMIT FOR THE SITE; HOWEVER, THE TERM "RCRA LANDFILL" HAS HISTORICALLY BEEN USED BECAUSE THIS WASTE REPOSITORY WAS REPORTEDLY DESIGNED AND CONSTRUCTED TO MEET RCRA SUBTITLE D DESIGN STANDARDS.



A SECTION
TYPICAL REPOSITORY SECTION
SCALE: 1"=100'

IMAGE SOURCE: AERO GRAPHICS. PREPARED FOR GREENFIELD ENVIRONMENTAL MULTISTATE TRUST, LLC, TRUSTEE OF THE MULTISTATE ENVIRONMENTAL RESPONSE TRUST (2015)

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LOCATION AND PROPOSED LAYOUT OF ON-SITE REPOSITORY

FIGURE **5**

UPDATE TIME: 4:24 PM
MRHODES\HEL\20171110\F:\DROPBOX\SODA SPRINGS MULTISTATE TRUST SITE\TCAM 10 ACRE POND\LARGE REPOSITORY.DWG

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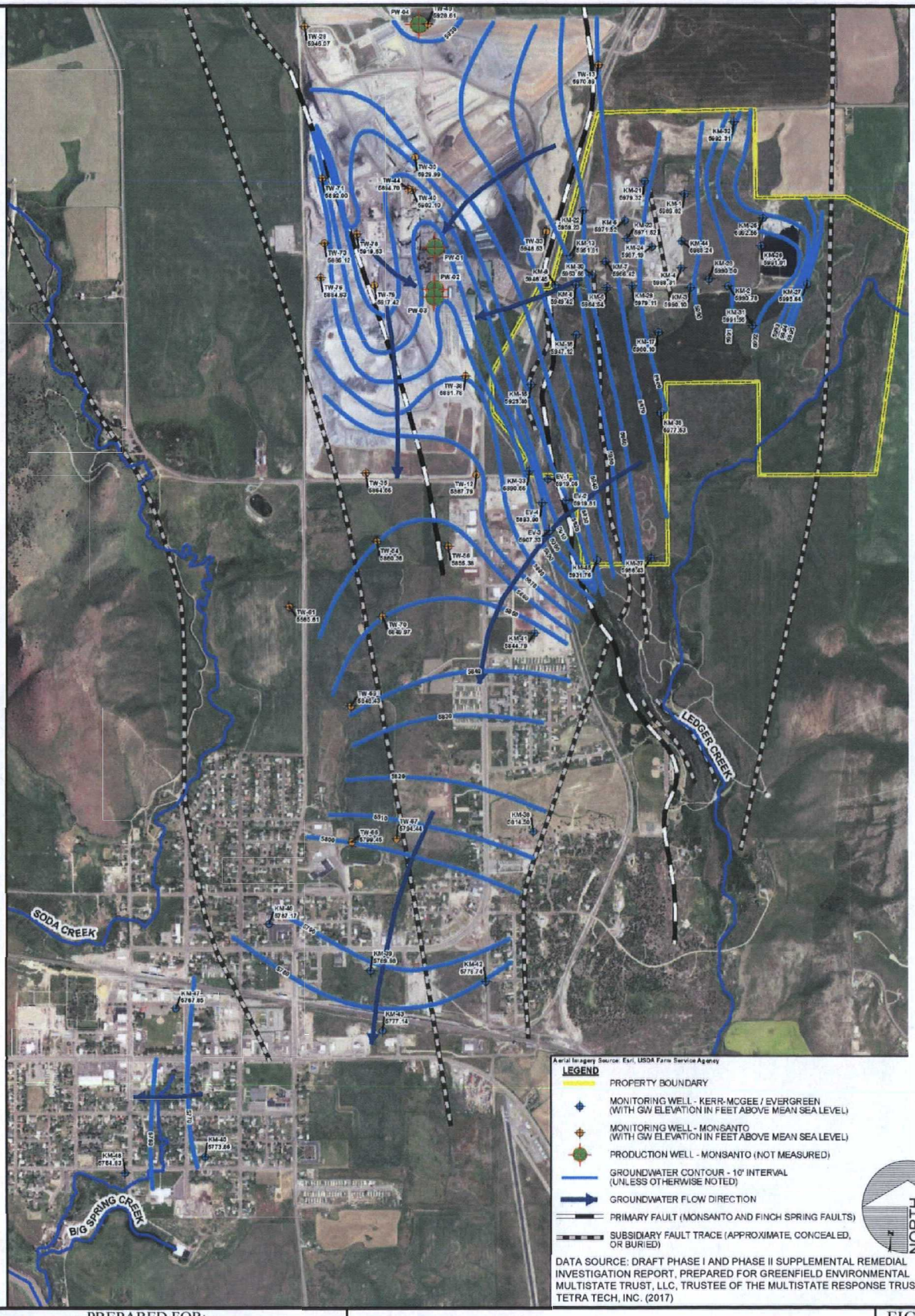

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SHALLOW GROUNDWATER ELEVATION MAP

FIGURE
6

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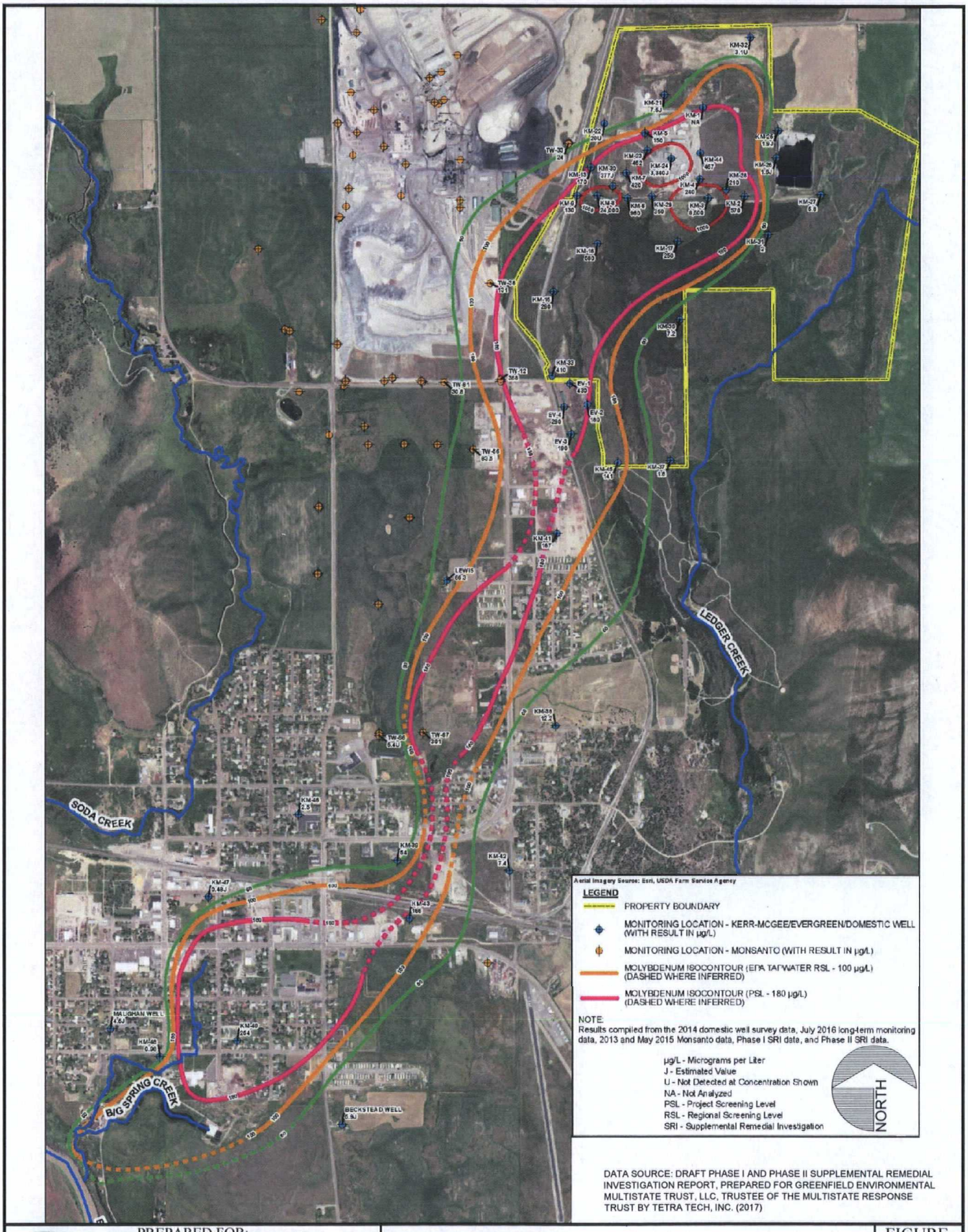

DATA SOURCE: DRAFT PHASE I AND PHASE II SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT, PREPARED FOR GREENFIELD ENVIRONMENTAL MULTISTATE TRUST, LLC, TRUSTEE OF THE MULTISTATE RESPONSE TRUST BY TETRA TECH, INC. (2017)

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SHALLOW GROUNDWATER MOLYBDENUM PLUME MAP

FIGURE
7

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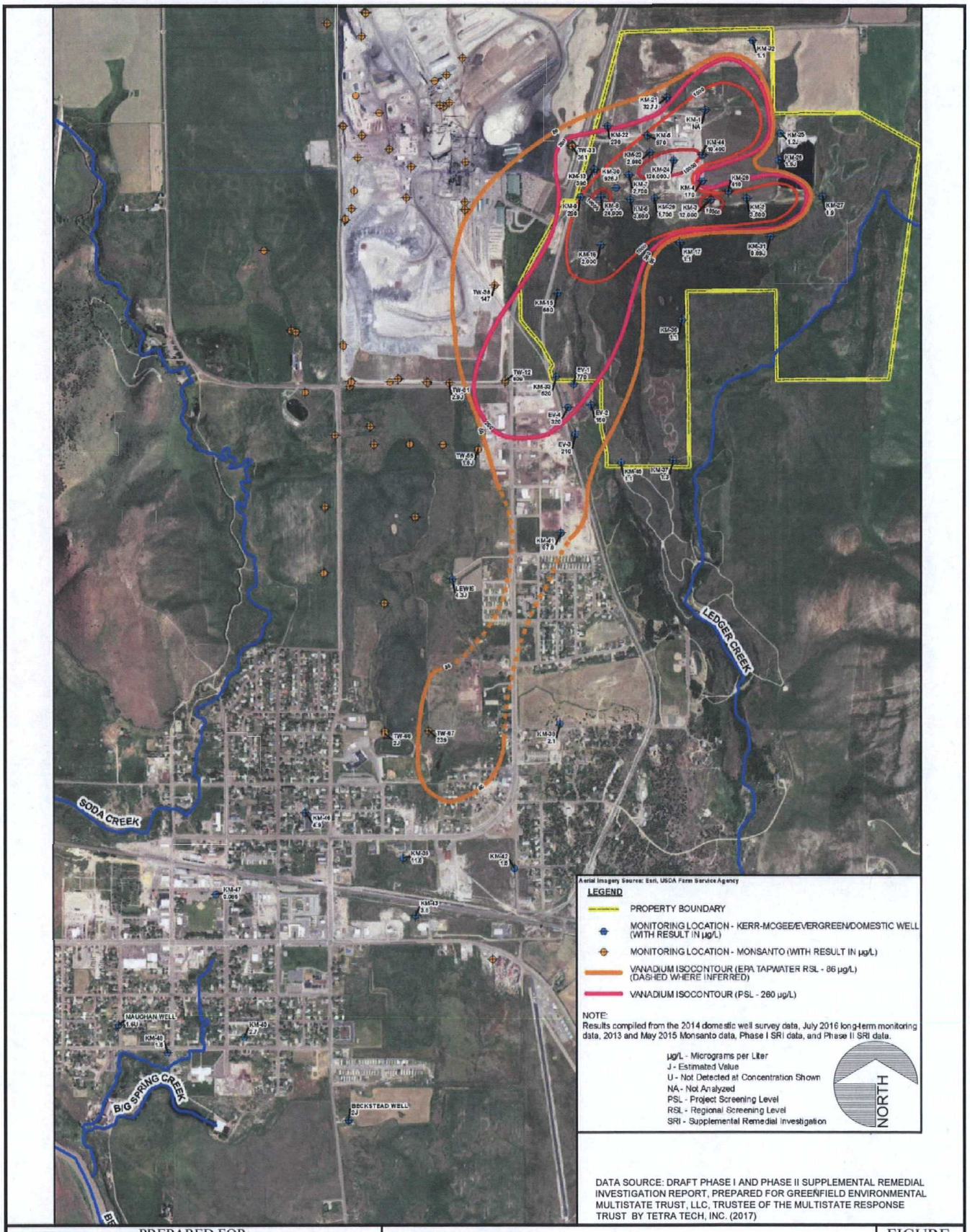

DATA SOURCE: DRAFT PHASE I AND PHASE II SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT, PREPARED FOR GREENFIELD ENVIRONMENTAL MULTISTATE TRUST, LLC, TRUSTEE OF THE MULTISTATE RESPONSE TRUST BY TETRA TECH, INC. (2017)

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SHALLOW GROUNDWATER VANADIUM PLUME MAP

FIGURE
8

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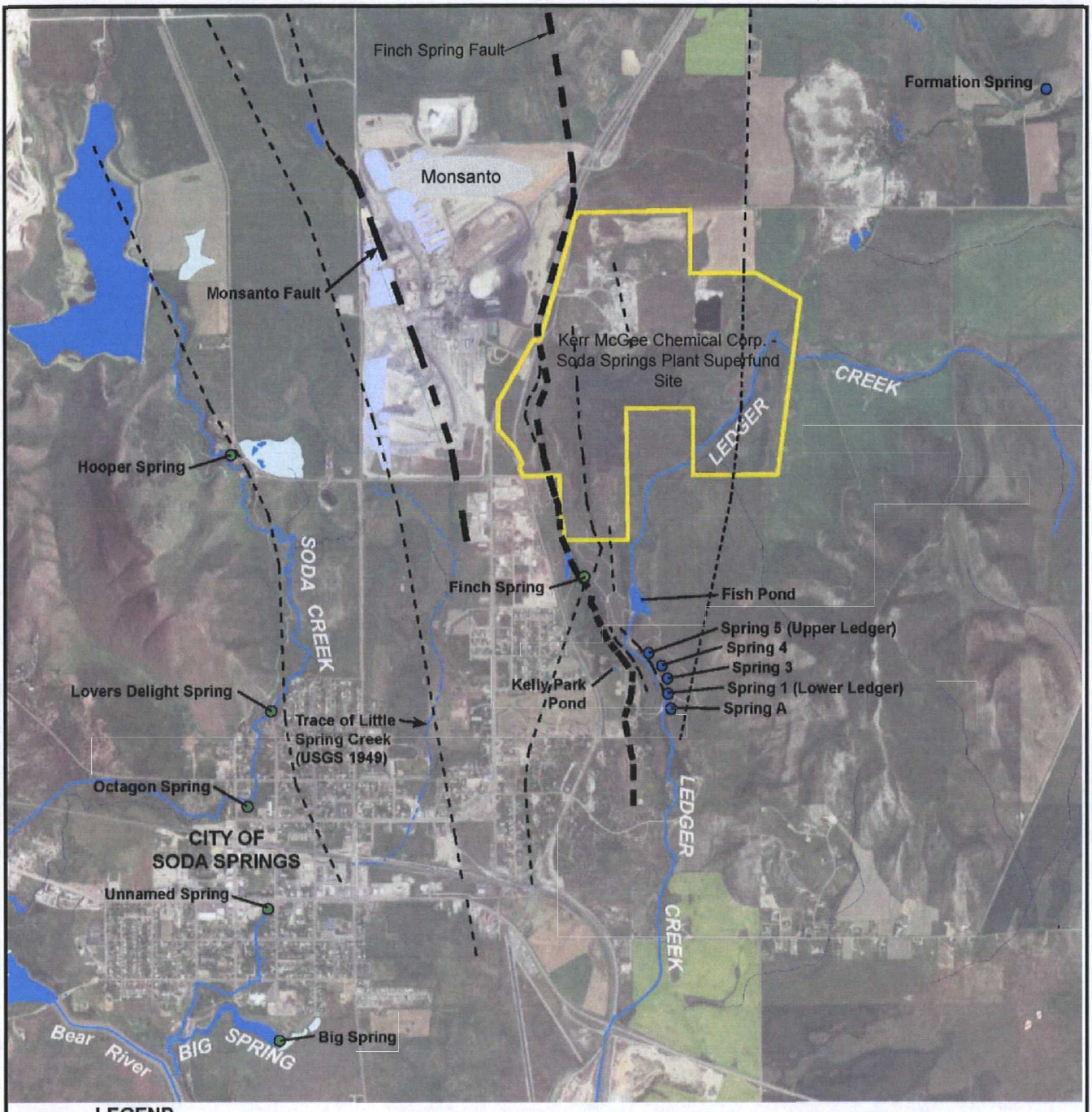

LEGEND

- SPRING
- SPRING - CITY SOURCE WATER
- LAKE/POND
- INDUSTRIAL POND
- SWAMP/MARSH/WETLAND
- PRIMARY FAULT
- SECONDARY FAULT
- PROPERTY BOUNDARY

NORTH

DATA SOURCE: DRAFT PHASE I AND PHASE II SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT, PREPARED FOR GREENFIELD ENVIRONMENTAL MULTISTATE TRUST, LLC, TRUSTEE OF THE MULTISTATE RESPONSE TRUST BY TETRA TECH, INC. (2017)

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SURFACE WATER FEATURES

FIGURE
9

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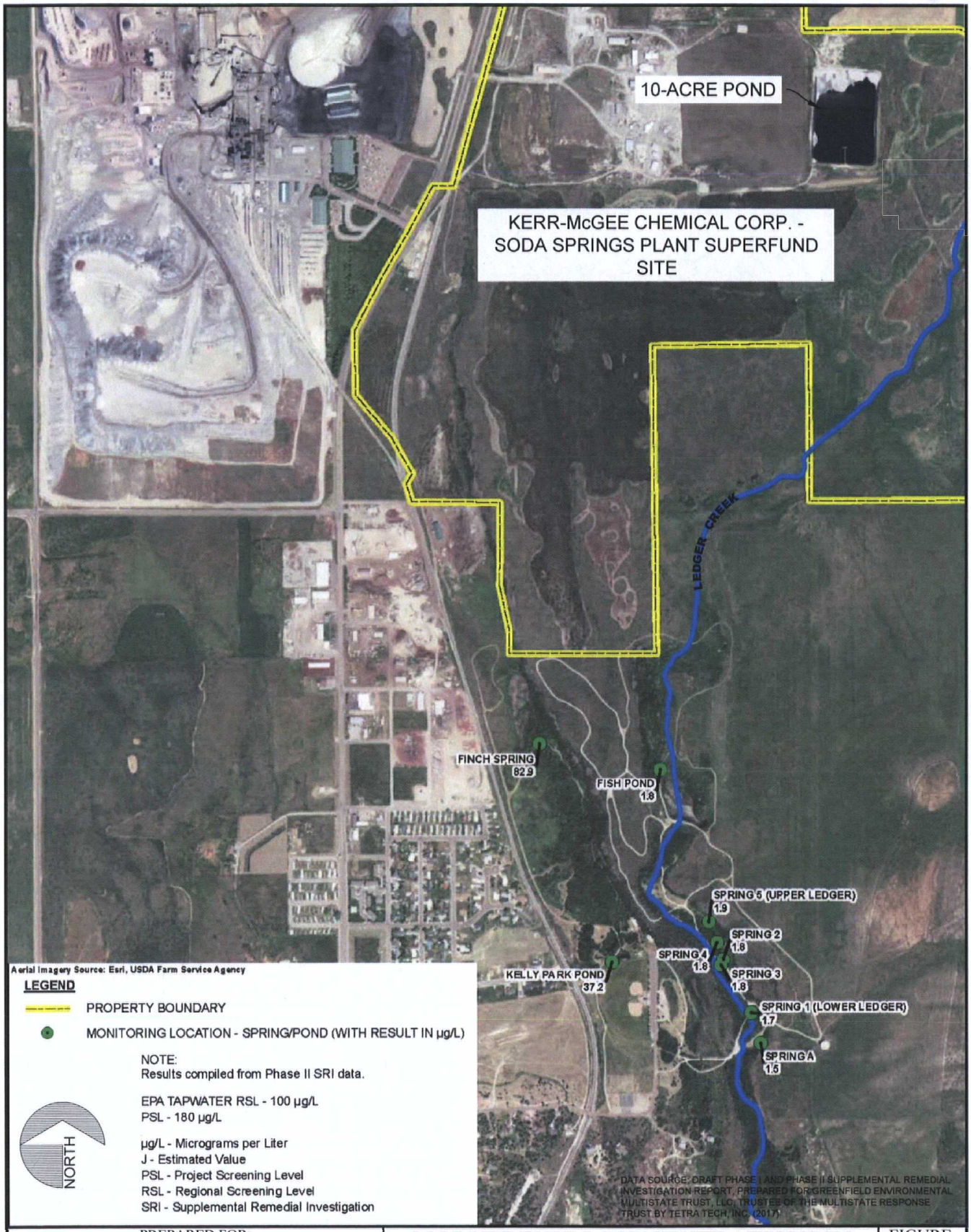

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MOLYBDENUM CONCENTRATIONS IN SURFACE WATER DOWNGRADIENT FROM 10-ACRE POND

FIGURE
10

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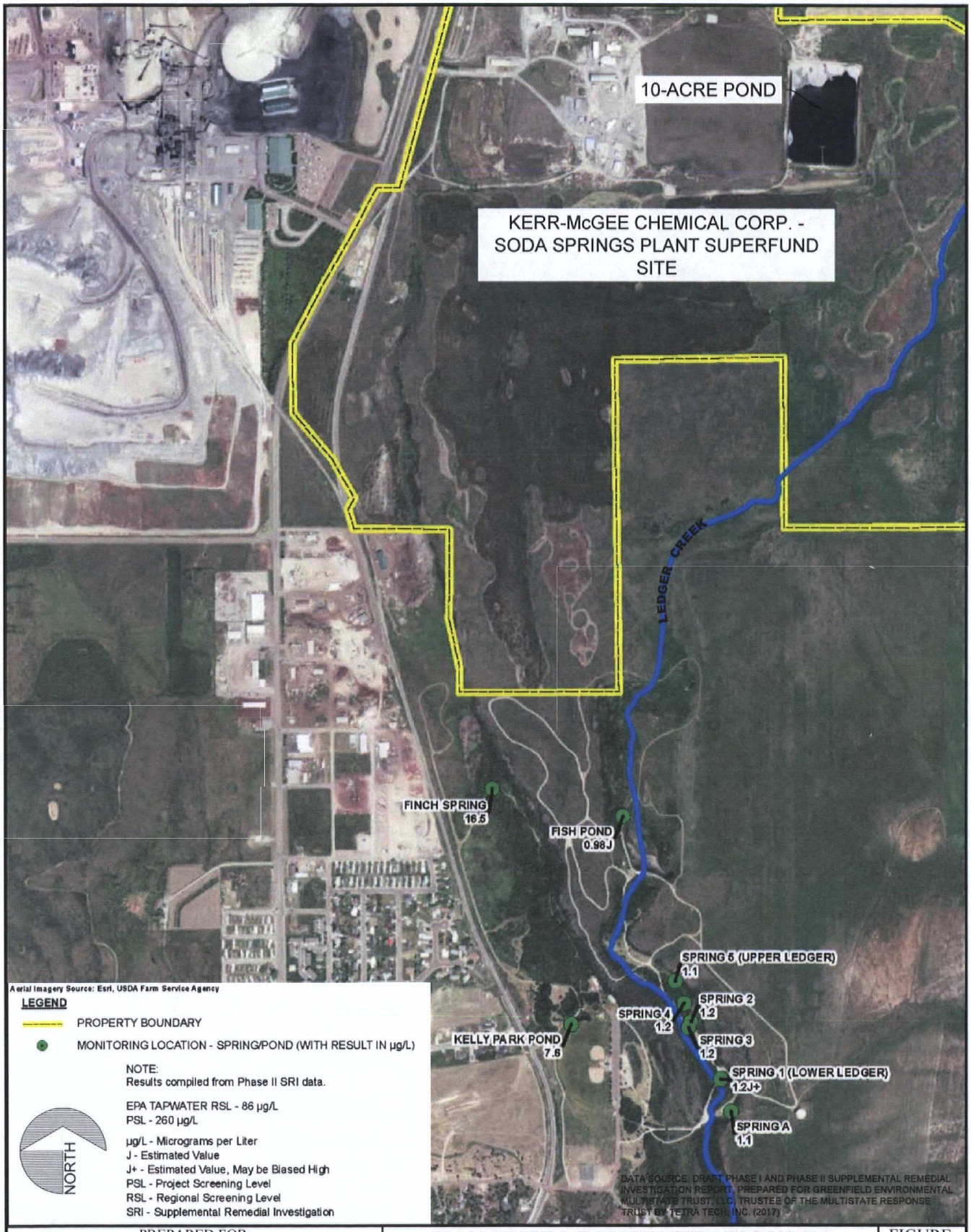

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VANADIUM CONCENTRATIONS IN SURFACE WATER DOWNGRADIENT FROM 10-ACRE POND

FIGURE
11

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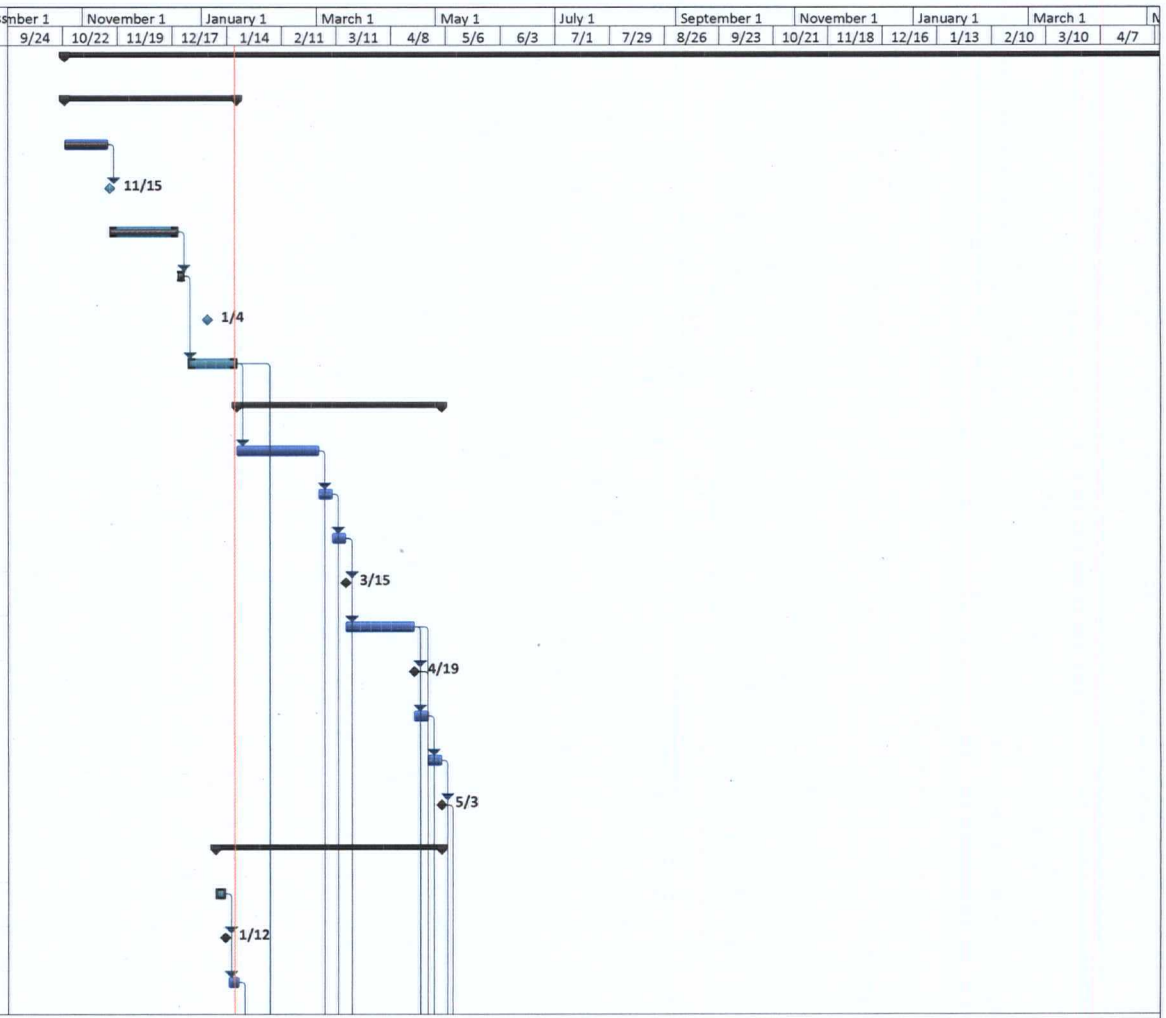
Attachments

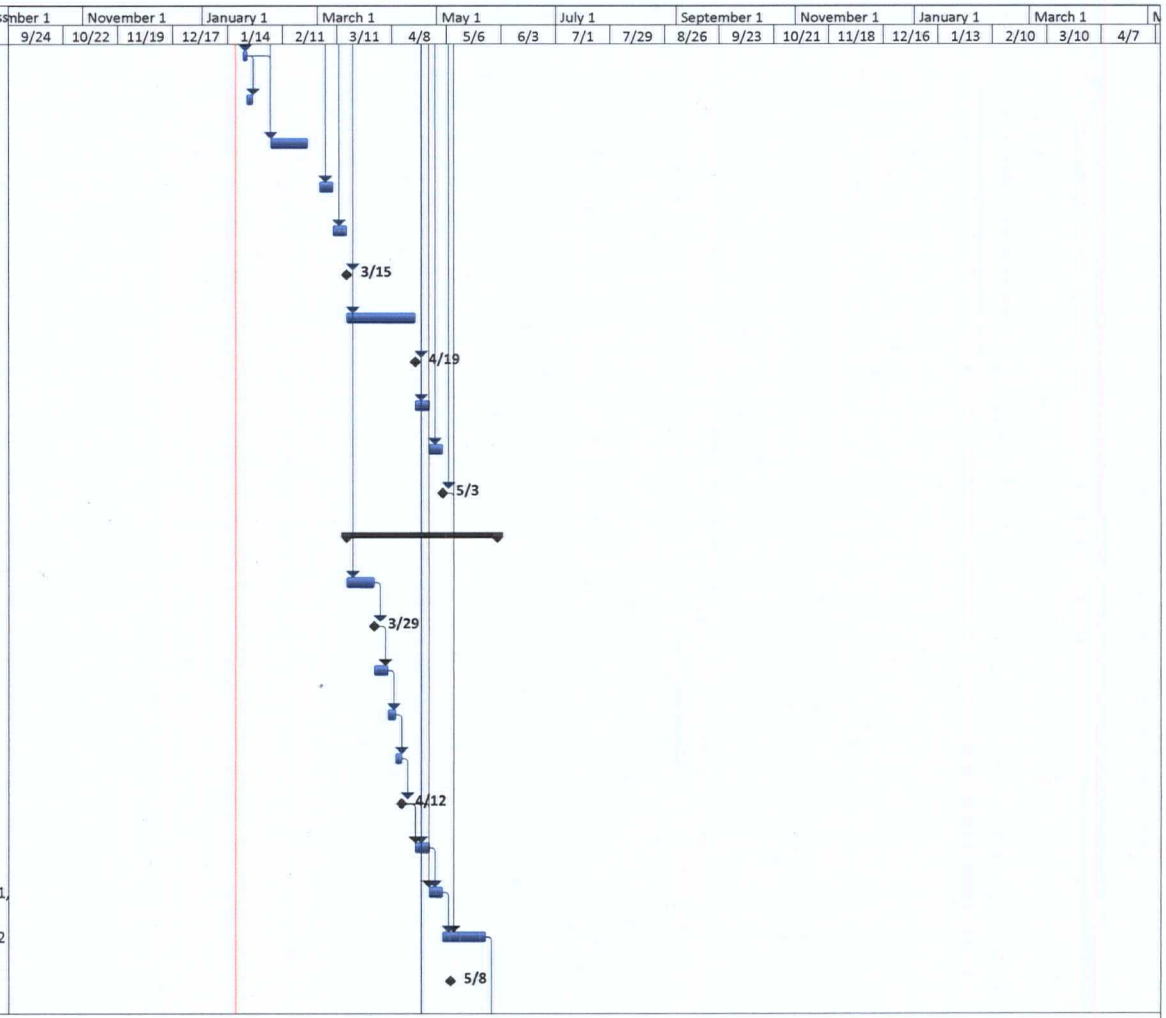
ID	Task Name	Duration	Start	Finish	Predecessors
1	**Multistate Trust: Soda Springs Site-10-Acre Pond**	**417 days**	**Mon 10/23/17**	**Tue 5/28/19**	
2	**Prepare 10-Acre Pond Time Critical Action Memorandum (TCAM)**	**64 days**	**Mon 10/23/17**	**Thu 1/18/18**	
3	Prepare and Submit 10-Acre Pond TCAM to EPA	16 days	Mon 10/23/17	Mon 11/13/17	
4	Submit 10-Acre Pond TCAM to EPA	0 days	Wed 11/15/17	Wed 11/15/17	3
5	EPA/IDEQ Review of 10-Acre Pond TCAM	25 days	Wed 11/15/17	Tue 12/19/17	
6	Responses to EPA/IDEQ TCAM Comments	3 days	Wed 12/20/17	Fri 12/22/17	5
7	EPA Tech Review Meeting	0 days	Thu 1/4/18	Thu 1/4/18	
8	EPA Approval of 10-Acre Pond TCAM	19 days	Mon 12/25/17	Thu 1/18/18	6
9	**Prepare 10-Acre Pond Removal Action Work Plan (RAWP)**	**75 days**	**Fri 1/19/18**	**Thu 5/3/18**	
10	Prepare & Submit Draft RAWP	30 days	Fri 1/19/18	Thu 3/1/18	8
11	Multistate Trust Review of RAWP	5 days	Fri 3/2/18	Thu 3/8/18	10
12	Revise and Submit RAWP to EPA/IDEQ	5 days	Fri 3/9/18	Thu 3/15/18	11
13	Submit Draft 10-Acre Pond RAWP to EPA	0 days	Thu 3/15/18	Thu 3/15/18	12
14	EPA/IDEQ Review Draft RAWP	25 days	Fri 3/16/18	Thu 4/19/18	12
15	EPA/IDEQ comments on Draft 10-Ac Pond RAWP	0 days	Thu 4/19/18	Thu 4/19/18	14
16	Revise, Finalize and Submit Final RAWP	5 days	Fri 4/20/18	Thu 4/26/18	14
17	EPA/IDEQ approval of Final RAWP	5 days	Fri 4/27/18	Thu 5/3/18	16
18	Final RAWP Approved	0 days	Thu 5/3/18	Thu 5/3/18	17
19	**Confirmation Sampling & Analysis Plan (CSAP)**	**84 days**	**Mon 1/8/18**	**Thu 5/3/18**	
20	Prepare Draft CSAP SOW	5 days	Mon 1/8/18	Fri 1/12/18	
21	Submit Draft CSAP SOW to Multistate Trust	0 days	Fri 1/12/18	Fri 1/12/18	20
22	Multistate Trust Review Draft SOW	5 days	Mon 1/15/18	Fri 1/19/18	20



Project: 10-Acre Pond TCAM Proje
Date: Thu 1/18/18

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

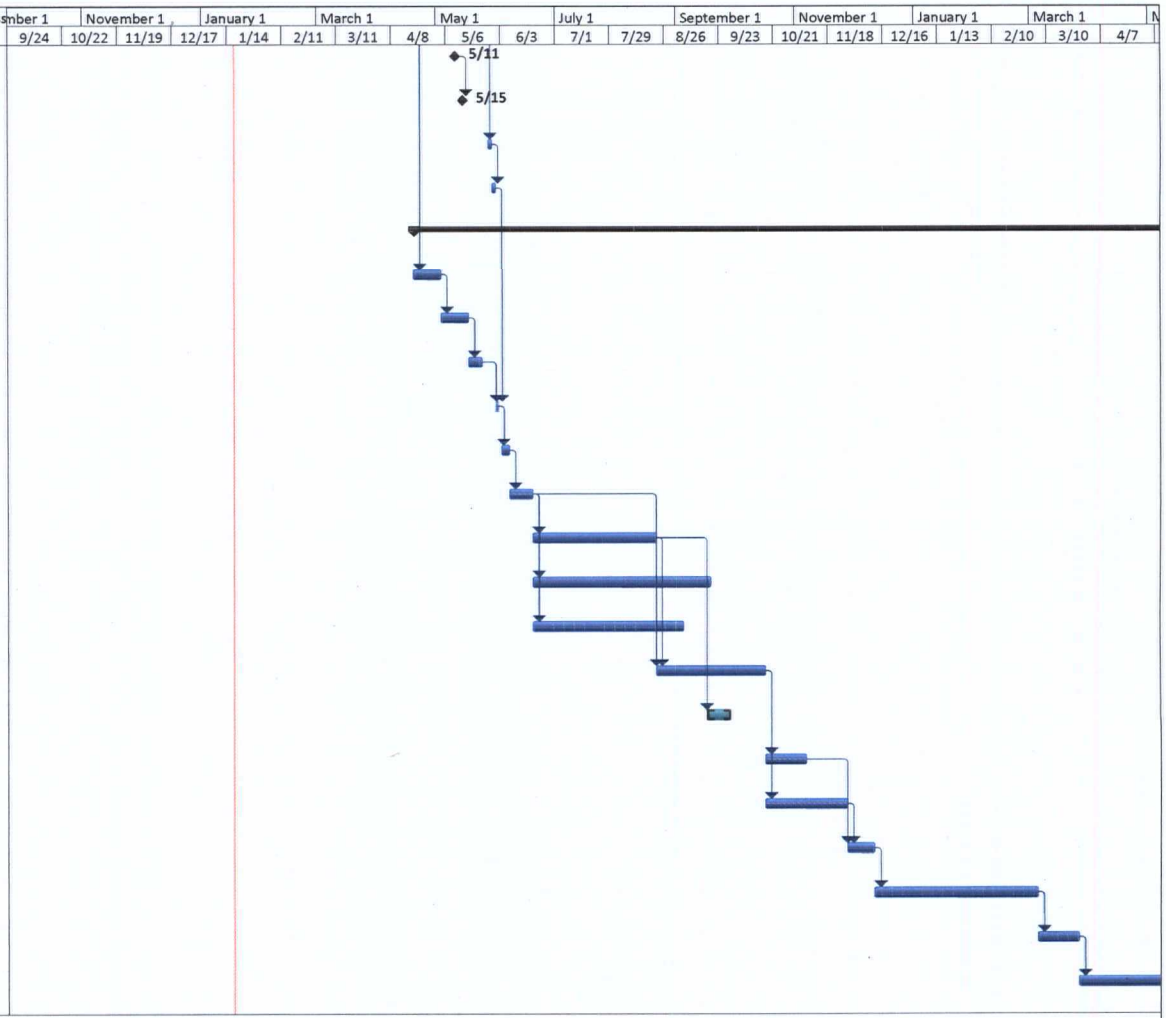
ID	Task Name	Duration	Start	Finish	Predecessors
23	Finalize CSAP SOW	2 days	Mon 1/22/18	Tue 1/23/18	22
24	Multistate Trust Reviews and Signs CSAP SOW	3 days	Wed 1/24/18	Fri 1/26/18	23
25	Prepare & Submit Draft CSAP	15 days	Mon 2/5/18	Fri 2/23/18	8,23
26	Multistate Trust Review of Draft CSAP	5 days	Fri 3/2/18	Thu 3/8/18	10
27	Revise and Submit Draft CSAP to EPA/IDEQ	5 days	Fri 3/9/18	Thu 3/15/18	11
28	Submit Draft 10-Acre Pond CSAP to EPA	0 days	Thu 3/15/18	Thu 3/15/18	12
29	EPA/IDEQ Review Draft CSAP	25 days	Fri 3/16/18	Thu 4/19/18	12
30	EPA/IDEQ comments on Draft CSAP	0 days	Thu 4/19/18	Thu 4/19/18	14
31	Revise, Finalize and Submit Final CSAP	5 days	Fri 4/20/18	Thu 4/26/18	14
32	EPA/IDEQ approval of Final CSAP	5 days	Fri 4/27/18	Thu 5/3/18	16
33	Final CSAP Approved	0 days	Thu 5/3/18	Thu 5/3/18	17
34	**Contractor Procurement**	**55 days**	**Fri 3/16/18**	**Thu 5/31/18**	
35	Prepare and Submit Draft Procurement SOW	10 days	Fri 3/16/18	Thu 3/29/18	12
36	Submit Draft Procurement SOW to Multistate Trust	0 days	Thu 3/29/18	Thu 3/29/18	35
37	Multistate Trust Review of Draft Procurement SOW	5 days	Fri 3/30/18	Thu 4/5/18	36
38	Finalize Procurement SOW	2 days	Fri 4/6/18	Mon 4/9/18	37
39	Multistate Trust Reviews and Signs Procurement SOW	3 days	Tue 4/10/18	Thu 4/12/18	38
40	Signed Procurement SOW	0 days	Thu 4/12/18	Thu 4/12/18	39
41	Shortlist Contactors	5 days	Fri 4/20/18	Thu 4/26/18	40,14
42	Prequalify Bidders	5 days	Fri 4/27/18	Thu 5/3/18	15,40,41,
43	Solicit Bids from Contractors	16 days	Fri 5/4/18	Fri 5/25/18	18,33,42
44	Site Walk	0 days	Tue 5/8/18	Tue 5/8/18	



Project: 10-Acre Pond TCAM Proje
Date: Thu 1/18/18

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline			
Split	External Tasks	Inactive Summary	Manual Summary	Progress			
Milestone	External Milestone	Manual Task	Start-only				
Summary	Inactive Task	Duration-only	Finish-only				

ID	Task Name	Duration	Start	Finish	Predecessors
45	Questions Due	0 days	Fri 5/11/18	Fri 5/11/18	
46	Answers and Addenda Due	0 days	Tue 5/15/18	Tue 5/15/18	45
47	Review Bids	2 days	Mon 5/28/18	Tue 5/29/18	43
48	Select and Recommend Contractor	2 days	Wed 5/30/18	Thu 5/31/18	47
49	**Implementation of Time-Critical Removal Action**	**288 days**	**Fri 4/20/18**	**Tue 5/28/19**	
50	Prepare And Submit Draft Construction SOW	10 days	Fri 4/20/18	Thu 5/3/18	14
51	Multistate Trust Review of Draft SOW	10 days	Fri 5/4/18	Thu 5/17/18	50
52	Prepare Draft Final Construction SOW	5 days	Fri 5/18/18	Thu 5/24/18	51
53	Incorporate Subcontractor Cost in Final SOW	1 day	Fri 6/1/18	Fri 6/1/18	48,52
54	Multistate Trust Reviews and Signs Construction SOW	4 days	Mon 6/4/18	Thu 6/7/18	53
55	Mobilization	8 days	Fri 6/8/18	Tue 6/19/18	54
56	Repository Base Construction	45 days	Wed 6/20/18	Tue 8/21/18	55
57	Pond Dewatering and Sediment Drying	65 days	Wed 6/20/18	Tue 9/18/18	55
58	Water Shipping Off Site	55 days	Wed 6/20/18	Tue 9/4/18	55
59	Placement of Pond Sediments in Repository	40 days	Wed 8/22/18	Tue 10/16/18	55,56
60	Confirmation Sampling of Pond Footprint	10 days	Mon 9/17/18	Fri 9/28/18	56
61	Reclamation of 10-Acre Pond Footprint	15 days	Wed 10/17/18	Tue 11/6/18	59
62	Install Repository Cap	30 days	Wed 10/17/18	Tue 11/27/18	59
63	Demobilization	10 days	Wed 11/28/18	Tue 12/11/18	61,62
64	Prepare Draft After Action Report	60 days	Wed 12/12/18	Tue 3/5/19	63
65	Multistate Trust Review of AAR	15 days	Wed 3/6/19	Tue 3/26/19	64
66	EPA Review of After Action Report	30 days	Wed 3/27/19	Tue 5/7/19	65



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Task
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Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
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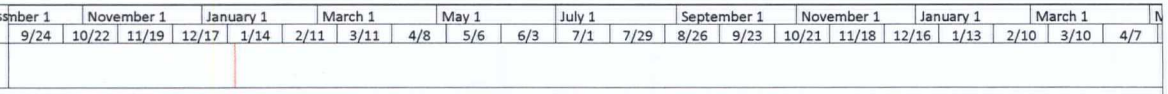
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Deadline
Progress

ID	Task Name	Duration	Start	Finish	Predecessors
67	Finalize AAR	15 days	Wed 5/8/19	Tue 5/28/19	66



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Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline			
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